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IODONE, LILLY---A New Chemical Compound

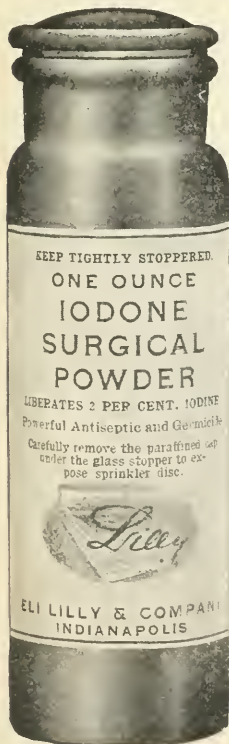
Liberates Free Iodine on Contact with Moisture

CHEMICAL NOTE—Iodone, Lilly, is produced by the action of iodine upon the anhydride of phthalic acid. It is a lustrous crystalline compound of dark green color. In the presence of moisture it liberates 52 per cent. of free iodine. To make it applicable to medical and surgical uses it is diluted with inert vehicles in such proportions that it liberates but 2 per cent. of free iodine on contact with moisture.

Iodone, Lilly, Makes Iodine Available for a Wide Range of Medical and Surgical Uses

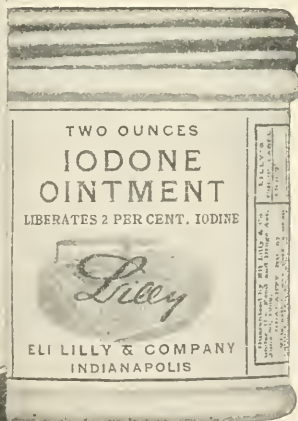
For years iodine has been recognized as one of the best germicides, besides it possesses peculiar stimulating properties on the processes of repair. Its use in medicine and surgery, however, has been limited owing to want of satisfactory means of applying. The tincture is too irritating in many cases, besides it does not meet the demand for a dry dressing and previous dry preparations of the class of iodoform do not liberate free iodine under ordinary conditions. IODONE, LILLY, in both its forms frees iodine under the conditions stated above and all claims for it have been thoroughly established by extensive clinical tests.

IODONE SURGICAL POWDER, LILLY



Applied to Infected Wounds, Boils, Ulcers, Abscesses, Etc.

Liberates gradually and automatically 2 per cent. free iodine on contact with the moisture of the secretions. It gives *prolonged action without irritation*—sterilizing, and stimulating repair. When secretions of moisture cease it acts as a simple dry dressing.



IODONE OINTMENT LILLY

For Skin Diseases of Parasitic Origin, Eczema, Erysipelas and other cutaneous affections where iodine is indicated.

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Reliable Ergot and Digitalis

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Most galenicals, particularly those containing alkaloids as active principles, are quite stable and hence there is no necessity for dating them. Fluid preparations of **DIGITALIS** and **ERGOT**, however, if improperly stocked, may deteriorate, and should therefore be dispensed in as fresh a condition as is possible. The dating on the package will be of much service to the pharmacist and the physician in enabling them to use reliable preparations.

We do not presume to say how long these preparations will keep. We have had preparations returned to us after two or three years which were entirely satisfactory for use, and, on the other hand, a considerable deterioration has occurred in less than one year. We believe, however, that liquid preparations of these drugs will remain satisfactorily active for at least a year if they are kept in a cool place, tightly stoppered and protected from the light.

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FLUID EXTRACT OF ERGOT.

We recommend the purchase of quantities to supply your needs for not longer than six months. Should the demand for these preparations justify purchasing in bulk, we recommend that the contents of the bulk package be transferred to tightly stoppered pint bottles, keeping them in a cool place protected from light.

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The Journal of the American Pharmaceutical Association

Volume I

JANUARY, 1912

No. 1

THE POLICY OF THE JOURNAL.

THE JOURNAL is not an object but an instrument. The American Pharmaceutical Association does not exist for the purpose of producing this publication, but the latter has been brought into existence to serve the necessities of the Association. Except for its ability to render this service in more complete manner and form than can be rendered by other existing agencies, the JOURNAL has no excuse for being.

The prime object of the JOURNAL is to furnish a more direct and speedy means of communication between the Association and its members than is possible through the columns of the other pharmaceutical journals. The latter, while they have been lavishly liberal in extending the use of their columns to the Association, can not, in the very nature of things, report its proceedings and the activities of its officers and committees with the fullness and detail necessary to the complete information of the members; while to withhold this information until the issue of the annual volume, or year book, as has been done hitherto, is to withhold it until it possesses value for only one division of the Association, to wit, the Section on Historical Pharmacy.

Beyond the extent necessary to adequately discharge its mission as the official organ of the Association, the JOURNAL will not, under its present editorial control, attempt to enter the field served by the general pharmaceutical press.

The reason for this self-limitation of function is sufficiently obvious. Evidently the Association would not add to its reputation nor increase its service to pharmacy by adding another to the numerous excellent publications addressed to the general drug trade, while to produce one that would be superior to the better of those now existing would not only tax its resources to the utmost, but would require a far more elaborate organization and much wiser and more efficient editorial direction than have been provided.

In fine, the JOURNAL will be satisfied to be and remain the official organ of the Association, and the first and last test that will be applied to any proposed policy or utterance will be its ability to serve the welfare of the Association and the cause for which it labors.

In pursuance of this policy, the JOURNAL will accept subscriptions outside of

its own members, but will not actively seek them, and its acceptance of such outside subscriptions will be based mainly upon the hope that the chance subscribers will thereby be attracted to and become members of the Association.

So also, the JOURNAL will accept advertising, but will not actively canvass for it. In its advertising policy the JOURNAL will be as independent as a government publication, or even more so, if common report be not a libel monger; and no firm will be big enough or rich enough to warp its editorial utterances, or buy space for the advertisement of any substance or service considered to be out of harmony with the expressed or plainly implied professions of the Association. The five formal rules of censorship to be found on another page are printed upon the face of every contract, and should this pentologue be infringed upon it will be due to the defective knowledge or judgment of the person whose duty it is to decide upon admissions and exclusions rather than to conscious evil intent.

While the JOURNAL will not knowingly accept advertisements not in accordance with the ethical professions of the Association, it will not undertake to run amuck with every individual or interest with which it does not agree. When duty seems to require it, the JOURNAL will not hesitate to discuss such topics with candor and directness, but, it is hoped, always temperately and with fairness. In defining its stand upon moral and ethical questions, the JOURNAL will not lack aggressiveness, but it will especially aim to be aggressive in minding its own business.

Any close observer will soon discover that the publication which makes the loudest profession of ethical cleanness is not necessarily the most nearly aseptic. Over noisy declarations of holiness, like the smell of chlorinated lime in a closet, usually indicates the presence of something that needs disinfection, and no advertising solicitor has ever earned such commissions as the club of the condemnatory editorial.

In selecting articles for admission to the reading columns regard will be had to the peculiar make-up of the Association.

The several branches of pharmacy very properly have their separate associations and separate organs, but as the A. Ph. A. aims to represent pharmacy as a whole, and as a grand division of human vocations, it acknowledges a duty to every legitimate subdivision and to every individual connected therewith, and professes to afford a forum where all may have a fair hearing and be judged according to the evidence and argument.

In a public address delivered many years ago, the writer referred to the A. Ph. A. as the clearing house of pharmaceutical opinions because it afforded every branch of pharmacy the opportunity to present its own views and to advocate its peculiar policies. The same will be true of its official organ, and the editor will as readily print the views of those who do not agree with him, as of those who do, provided they are in other respects of sufficient merit to warrant the use of the space required, and are free from offensive personalities.

In what is said above the editor is assuming that his statements fairly represent the collective opinion of the Association as to what should be the scope and policy of its official organ. Should subsequent events prove that, either in this or in other respects, he has erred in gauging the intentions of the society, he

stands ready to retire in favor of any one deemed better able to correctly appraise and properly express its purposes.

According to a resolution adopted at the Richmond convention, and as yet not formally repealed, "editorials shall be limited to synoptical references to the current JOURNAL, and on stated questions must be confined to the attitude of the Association."

This resolution, or so much of it as is understandable, would, if literally interpreted, reduce editorial utterances to mere perfunctory expressions which might as well be left unexpressed. The editor will presume, therefore, to adopt a somewhat more liberal construction, and will proceed upon the theory that he is to have "reasonable latitude of action," always acknowledging full responsibility to the Association for the manner in which he shall exercise his discretion.

In some respects the editing of a journal is like the stirring of a soft coal fire—the average onlooker feels that he could perform the operation somewhat more efficiently than the individual who has the poker—an opinion which in the present case will doubtless be frequently justified by the facts. The editor does not, therefore, expect to escape criticism, or even to avoid giving just cause for it, but would call the attention of his critics to the tolerant spirit of the notice said to have been posted in a frontier concert hall, "Please don't shoot the man at the piano; he's doing the best he knows how."

J. H. BEAL.



THE OPPORTUNITY OF AMERICAN PHARMACY.

The pharmacist is coming into his own. His light is no longer to be hid under a bushel. His profession is now regarded as a learned one and the pharmacist is recognized as having a place in the society of scholars.

The progress in pharmaceutical education and the raising of the standard of pharmaceutical efforts have been the leading causes in the development of pharmacy as it stands today.

The time has long gone by when any man, no matter whether he had the training or not, commanding a few hundred dollars, could open a corner drug store, without leave or license. In nearly every state the laws regulating the practice of pharmacy are now rigid, and when properly enforced, restrict the practice of this profession to those qualified to follow it. At the same time the colleges of pharmacy have raised their standards of entrance and stiffened their requirements of graduation to such a degree that the young graduate may with some right claim the title "doctor."

Another step in the direction of the greater dignity of the profession has been the enactment of state and national laws securing to the pharmacist a degree of certainty that he is handling the articles which bear the names. It must be a great satisfaction to the honest, upright and ambitious pharmacist that he is absolutely certain of the wares in which he deals. This certainty to some degree assists in eliminating unfair competition which has been the stumbling block over which so many well meaning pharmacists have fallen.

Further, the publicity which has been given in the last two or three years to the enormous frauds which have been practiced in certain patented and pro-

prietary articles has turned the gaze of the public with great expectancy towards the re-established drug store.

The people are beginning to understand that they have been deceived by the false and sometimes criminal misleading claims of virtues which are wholly mythical. The many millions of dollars which during the last few years have been wasted on crude, imperfect and useless remedies may and will soon be saved to the public, and a great part of this will be turned into legitimate pharmaceutical channels.

It is utterly unfair to the pharmacist to require him to undergo long years of preparation and pass the most rigid examinations to practice his profession and then for him to meet at every point the unjust competition of Dr. Quack, who has never taken a degree or passed an examination. The most efficient control of the proprietary medicine trade directly to the public, would be to require every maker or vendor of these make-believes to pass a rigid examination for pharmacy and medicine in every locality where his wares are offered for sale, through the newspapers or otherwise.

Great help is coming in this line also by the awakening of ethics in the press. Many magazines and newspapers are now carefully studying the character of the advertisements for healing articles which are offered them, with a view to the exclusion of those which are false and misleading.

The registered pharmacist, in my opinion, will be rid, in the near future, of this unjust and dangerous competition.

Pharmacy is also soon to have the advantage of the best Pharmacopoeia which has ever been published in any land. All over this country are found devoted scholars and competent specialists who are giving freely of their time and efforts to the most careful and painstaking revision of this important standard. While it is not expected that the new book will be absolutely perfect or complete in scope it will undoubtedly be the greatest aid to the pharmacist, from the scientific point of view, which has ever been put into his hands.

The people of this country are beginning finally to appreciate pharmacy as a profession which has their best interests at heart. They are beginning to look upon the pharmacist as a man of learning and one devoted to his duties. They will soon appreciate the fact that the only safe place to get a real remedy is at the near by drug store.

HARVEY W. WILEY.



Showing Hydrastis beds of Dr. G. W. Homsher, Camden, Ohio.

THE CULTIVATION OF HYDRASTIS.*

JOHN URI LLOYD, PHAR. M.

NAMES. Hydrastis is known under the name *Golden Seal*, by reason of the yellow, seal-like scars on its fresh rhizome. The name *yellow root* is extensively employed by collectors, while the name *yellow puccoon*, once common, is now practically obsolete. The following names have also been employed to designate Hydrastis, for obvious reasons; *eye balm* and *eye root*, because of its use in eye affections; *Indian paint*, *yellow paint* and *Indian dye*, because the North American Indians used the root for coloring purposes; *Indian turmeric*, *wild turmeric*, *golden root*, *curcuma*, *Ohio curcuma*, and *wild curcuma*, because the drug resembles curcuma; *jaundice root*, because of its yellow color; *yellow eye*, because of the yellow scars (eyes) above alluded to; and *ground raspberry*, because of its red berry, resembling a raspberry. The name most used, from the beginning to the present date, is *Golden Seal*.

NATIVE DISTRIBUTION. Originally, Hydrastis was more or less abundant over the wooded portions of Ohio, Indiana, Kentucky and West Virginia, Cincinnati

*This article is written in the first person, and, by request of the editor, gives facts concerning Hydrastis culture as observed in my own experimentations, corroborated by others known to me personally. No attempt has therefore been made to embody the experiences of persons who have heretofore printed articles on the subject, nor have my own previous publications, or my own photographs and detail notes been used at all, excepting briefly. The cuts, excepting those showing the Hydrastis farm of Dr. Homsher, are from *Drugs and Medicines of North America*, 1884, or from others of my previous prints on the subject. The object being to present the problem so as to save to others experimental wanderings, I must yet urge the reader who proposes to enter the field of Hydrastis culture, to study carefully the Bulletins issued on this subject by the Agricultural Department of the United States Government, especially the admirable pamphlet of Miss Alice Henkel and G. Fred Klugh, of the *Bureau of Plant Industry*.—L.

being nearly the geographical center of its original commercial area. Pockets of it were also found in Southern Illinois, Southern Missouri, Northern Arkansas and Central and Western Tennessee, these sections occasionally yielding the drug in quantity sufficient for collection. It was scarce throughout most of Illinois, Northern Indiana, Southern Michigan, the Southern Peninsula of Ontario, Pennsylvania and Western New York, and was occasionally found near the base

and along the ravines of the Allegheny Mountains. Its area of distribution in former years is illustrated by the accompanying map (Fig. 3), reduced from *Drugs and Medicines of North America*, 1884.



Fig. 1.
Hydrastis Fruit.
(One-fourth Size)

The natural location of *Hydrastis* is in rich, open woods, where leaf mold is abundant. Although easily cultivated (as shown hereafter), it has no power to adapt itself to destructive, altered natural conditions, being quickly exterminated by cultivation of the soil. Even cutting off the trees for woodland pastures, especially in clay soil, causes the wild plant to disappear in a few years. Its greatest enemy is grass sod, which smothers it from existence. The plant will, however, stand extremes

of temperature, as is evidenced by its natural distribution. A small but very luxuriant garden bed of *Hydrastis* was shown me some years ago by a friend in Detroit, while in my own garden in Cincinnati it grew and thrived in a glazed-over, grass-free bed, even though exposed to the blazing, direct rays of the sun.

COMMERCIAL HISTORY. In 1793, the American Philosophical Society published in its Transactions (p. 224), a paper by Mr. Hugh Martin, read before that society under the title, "*An Account of Some of the Principal Dyes Employed by the North American Indians.*"

In this we find the first reference to *Hydrastis*, Mr. Martin stating that the bright yellow dye of the Indians was obtained by the use of a plant that he said might well be called "*radix flava Americana.*" Rafinesque, 1828, in his *Materia Medica*, devoted much space to the drug, while the early commentators on American medicinal plants slightly mentioned it. The editor of the *Thomsonian Recorder*, 1833, added it to the



Fig. 2.
Leaf and Flower of *Hydrastis*.
(One-third Size)

Thomsonian materia medica, and Wooster Beach introduced it in his practice, but the drug was neglected by the first edition of the *United States Dispensatory*, 1833. The second edition, 1834, gave it a slighting reference, which was carried, unchanged, for ten years. *The Electric Dispensatory*, King and Newton, 1852, made *Hydrastis* conspicuous, and it thereafter became much employed, becoming official, in 1860, in the Pharmacopoeia of the United States.

During this entire period the drug was abundant, the price ranging from eight cents to twelve cents per pound. I knew of one lot of 15,000 pounds offered in Cincinnati about 1870, at eight cents a pound, but refused. However, even then, far seeing people perceived that the march of civilization must soon result in the extermination of this unique and helpless American plant. In 1884, in *Drugs and Medicines of North America*, I called attention to the fact that, as a wild drug, *Hydrastis* must, within a reasonable time, become extinct, and I then not only took steps for self-protection, but advised parties concerned to prepare for the coming famine. Let me quote from the article cited:

The Past and Present Supply.—Only a small area of country can yield the drug in amount sufficient to repay collection at present prices, and of this section of country, but a limited portion actually contributes any of it to the market. It does not necessarily follow, however, that the plant will not disappear in sections where it now grows abundantly, but which have never yielded the drug to commerce. *Hydrastis* is so sensitive to climatic influence that even a partial destruction of the timber causes it to shrink away, and one turn of the soil by the plow blots it from existence. If it were like *Podophyllum*, content to thrive in woodland pasture, the future would be brighter; as it is, each year witnesses a shrinkage in area and a loss to the world (without economic return), of this peculiarly interesting American plant. *Hydrastis* has nearly vanished from the rich hillsides bordering the Ohio river, and is no longer found in the populous sections of our valley. *Drugs and Medicines of North America*, 1884, page 93.



Fig. 3.

Map, showing natural distribution of *Hydrastis* in 1884. *Drugs and Medicines of North America*. The heavily-shaded portions indicate the territory in which *Hydrastis* was then abundant. The lighter-shaded portions indicate territory in which the drug was found, sometimes as an article of commerce. The unshaded portions indicate an absence of *Hydrastis* growth.

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How well the prophecy then made has been fulfilled, is evidenced by the *Hydrastis* famine now prevailing among those who failed to read the lesson aright.

CONCERNING THE CULTIVATION OF HYDRASTIS. Contrary to the usual opinion, *Hydrastis* is easily cultivated, providing the soil be suitable, and the bed kept free from grass, which not only prevents its increase by the delicate adventitious buds on its slender roots, but even smothers the mother plants. For this reason, rather than from the absolute necessity of deep shade natural *Hydrastis* abounds in rich, soft, loamy woodlands, and consequently, artificial growing must, if success is to be hoped for, recognize these conditions. Scientific study and care in the artificial cultivation of the drug will unquestionably improve on natural methods, but nature is an excellent teacher. In this connection, the experiments of Dr. H. T. Grime, of New Carlisle, Indiana, are very interesting. He writes me, in substance, as follows, his letters bearing date of November 10, 1906, and May 1, 1908:

Cuttings in boxes five feet above the greenhouse floor, well mulched with rotted horse manure and sawdust, grew thriftily. In ordinary hothouse benches, the plants close together grew so fast as to exhaust the soil in one month. I never saw such rapid growth and such early maturity. I discarded wild soil, because of its contamination with insects, worms and other pests, snails being the worst, replacing same with artificial soil fertilized by henyard refuse, ashes, butcher-shop waste and bone manure. The cuttings started in the greenhouse were transferred to rows in this artificial garden, which was shaded by beans on poles with barrel slats overhead, as well as by fruit trees, with grapevines planted at frequent intervals. Occasionally the plants were sprayed by Bordeaux Mixture. The result proved that the *Hydrastis* grew rapidly and unfortunately exhausted the soil quickly, being in this respect *worse than tobacco*. Many of the leaves grew to the exceptional size of twelve inches in diameter.

CHARACTER OF THE RHIZOME. Fresh, full-grown, wild *Hydrastis* rhizome is from $1\frac{1}{2}$ inches to 2 inches in length, and from $\frac{1}{4}$ inch to $\frac{3}{4}$ inch in diameter, usually subdividing if of $1\frac{1}{2}$ inches in length. (Fig. 4.) It then not infrequently forms knotty clumps.

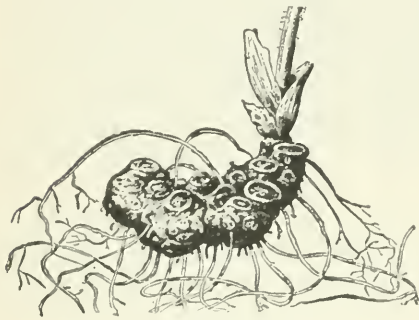


Fig. 4.
Rhizome of *Hydrastis*.
(One-half Size)

are inferior in quality, hence great age is not accompanied by a proportionate increase in size. Seventy prime, full-sized, green *Hydrastis* rhizomes (wild), gathered by me October 20, 1907, weighed eighteen ounces. Sixty, of inferior quality, weighed ten ounces.

INCREASE BY ROOT BUDS. In studying natural clumps of *Hydrastis* in the woodlands, I was struck with the fact that the patches under

When dry, the diameter is from $\frac{1}{8}$ inch to 1-3 inch. (Fig. 5.) The weight of the fresh rhizome, with attached roots, averages from 80 to 175 grains, but in drying it loses about two-thirds of its weight, or even more. After a growth of from four to six years, the rhizome gradually decays at the older extremity, while at the growing end it creeps through the earth, after the manner of *Trillium*. The older portions



Fig. 5.



Fig. 6.
Berry of *Hydrastis*
(Natural Size)

the beech trees, where it luxuriated to best advantage, spread uniformly outward in the woodlands, creeping often to a considerable distance. Again, a parent stem would be surrounded with plants more or less developed, the sports sometimes reaching several feet from the parent stem. I was somewhat perplexed to account for this method of increase, because it surely had not come from the seed, which are very scarce in their natural condition, being enclosed in a small, red berry resembling a red raspberry that is greedily eaten by birds and squirrels. (Fig. 6.) Nor does the rhizome divide itself. But original experimentation in the Kentucky woodlands, as well as in our cold frames at home, demonstrated that some of the delicate root fibres, creeping close beneath the ground, threw up adventitious buds (Fig. 7),

which became new plants from the decay of the connecting rootlet (Fig. 8). Some of these root fibres spread to a considerable length, often two or three



Fig. 7.
(A shows bud on rootlet)

feet, or more, following soil avenues of least resistance, frequently cast up more than one bud from the same rootlet (Fig. 9.) Creeping alongside decaying limbs and roots, even penetrating their substances, the natural plant bed thickens and spreads, regardless of the seed.

These, however, when dropped by birds or otherwise scattered, serve as nuclei for new patches, but do not, in my opinion, materially account for the increase of old clumps. Indeed, though propagating by seed is possible in a home-made bed protected from birds and squirrels, I found it necessary, both in a natural woodland of large extent and in my

exposed plant beds at home, to bag each clump of green berries, in order to secure seeds enough for experimentation.

INCREASE BY CUTTINGS. Every full-grown rhizome of *Hydrastis* is studded with rootlets and many undeveloped buds. As each eye of a potato will, under proper cultivation, make a plant, so each of these *Hydrastis* buds, provided there be a good root attached, will produce a *Hydrastis* plant. If a rhizome be



Fig. 9
(Young rhizome A, on rootlet, two buds (B and C) set on same rootlet. Rootlet shortened in cut from 18 inches long in order to show buds.)



Fig. 8.
(Bud on rootlet, fully developed)

sliced transversely into parts, each portion carrying its bud and a few fibrous roots, and these be planted a few inches apart, in rows, in shaded, grass-free beds, in moist soil fitted to its growth, most of the young plants are certain to make a thrifty start, unless an unfortunate drought prevails just after the setting (Fig. 10). Even here, the experience of Dr. Homsher shows that cuttings that have apparently succumbed to untoward conditions, may still be alive, throwing out root fibres and producing a strong underground bud the first season, to come up the second season as vigorous young plants. The rapid rate at which a *Hydrastis* bed

may be increased by means of cuttings is indicated by the fact that the seventy old roots mentioned above yielded 345 eye-cuttings with rootlets, and forty

eyes without fibres. The sixty inferior plants gathered at the same time, yielded 240 eye-cuttings, with rootlets, and seventy eyes without fibres. I have found it best to plant the cuttings an inch beneath the soil, a few inches apart, and thus



Fig. 10.
(Cutting of
Hydrastis.
Rhizome
sending up
stalk from
eye.)

allow them to remain for two years, when they should be transplanted into rows, or into beds of any shape or size designed for the purpose, it being better, however, that these should be patterned after the manner of flower beds, with walks between, so as to enable a person to reach the center, without stepping on the bed. One thousand cuttings potted in April, one each in a two-inch pot, the whole lot being set in the earth to form a solid bed in a shady ravine, developed nearly the entire setting. This plan, in my opinion, is the best method of starting a new bed. In five years the transplanted plants, six inches apart, in rows twelve inches apart, will be ready for gathering.

GATHERING THE CROP. The parent rhizome (four to six years old), after the leaf has withered but can still be located, should be lifted from the earth and three-fourths of it cut off, the growing end, carrying the terminal bud, being replaced in the earth, thus leaving in the bed a full-grown plant to continue the future. In addition, the small plants that have arisen from the rhizome can be removed to new localities, thus rapidly increasing the *Hydrastis* crop. The parent bed remains thus preserved in a luxuriant setting, the plants themselves, as well as the root buds, contributing to the increase. Had collectors of the natural drug adopted these precautions, the woodlands yet remaining in its native sections, would be studded with beds equal, if not superior, to the original supply. To illustrate the rapidity with which a *Hydrastis* crop can be produced under favorable circumstances, attention is called to the following letter from a successful grower of *Hydrastis*, in whose efforts I have been much interested. An eclectic physician, he naturally became concerned in the subject, and listening to my arguments some years ago to the effect that a *Hydrastis* famine was near at hand, began experimenting accordingly.* (Fig. 11.)



Fig. 11.
Showing woodland *Hydrastis* culture by Dr. G. W. Homsher,
Camden, Ohio.

* Dr. Homsher was first more interested in *ginseng* than in *Hydrastis* cultivation.

CAMDEN, OHIO, December 1, 1911.

Friend John Uri Lloyd:

You asked me to write you briefly in regard to my experience in the cultivation of Hydrastis.

In the fall of 1903 I commenced the garden cultivation, planting under artificial shade, about 800 to 1000 roots. In 1907 I bought twenty-five acres of ideal woods, had my men cut and grub out the underbrush and prepared my beds, 4½ feet to 5 feet wide, the soil being rich and loamy. In the fall I transplanted all the stock from the garden to its native woods, thus going back to nature. During the year 1907 my men succeeded in gathering about 5000 wild plants, which I divided and planted, six inches each way, in rows. Every year since, I have added from 5000 to 8000 plants.

As regards cuttings, I will say that I find it is best to *break* (not cut) the roots, and to see that sufficient fiber roots are left with each piece of root. My cuttings are accomplished in September. The next spring, it may be that not more than half of the plants from these cuttings come up, but the *second* year, nine-tenths of these young plants send up a top. I have found cuttings to send out strong fiber roots during the summer and germinate a bud, *although no top appeared until the following year*. After the cuttings are placed, the beds should be well mulched with rotten wood or decayed leaves, not too heavy, about one and a half inches thick. (See photographs accompanying.)

G. W. HOMSHER, M. D.

RECAPITULATION. Hydrastis Canadensis can be easily cultivated, and after the time necessary for the maturity of the beds, may prove a profitable investment, as well as a pleasant avocational side issue for doctors, druggists and others in rural sections.

The photographic views of the woodland beds of Dr. Homsher, together with his report, are fully comprehensive.

The investigations of Dr. Grime demonstrate:

1. That Hydrastis can be propagated by hothouse methods as a quick starter.
2. That the rhizomes, transferred to artificially enriched soil, in a garden shaded by bean and grape vines and a few trees, grew more rapidly than the wild plants.
3. That Hydrastis rapidly depletes the soil, even though it be very rich.

The difficulty at the present time lies in the fact that the natural drug has been exterminated from all sections of the country, thus preventing the obtaining of green plants for cuttings. Parties raising the drug are utilizing the increase thereof to enlarge their own beds. However, most druggists in the Central West can, in their own neighborhoods, obtain enough of the wild plants to make a start (a few plants will answer), and as has been shown by this article, under proper conditions and *care*, the increase will be rapid. A rich, loamy garden, shaded, will answer every purpose, but a deeply shaded natural woodland is ideal.

The greatest trouble with natural woodland cultivation comes from the poacher, who considers everything that grows in the woodlands free, and who loses no opportunity to encroach upon the property of his neighbors, this being particularly true at the present high price of Hydrastis.

Let me say in closing, that the exorbitant price now demanded for Hydrastis is altogether owing to ordinary man's improvident disposition and destructive vandalism. The present scarcity is unnecessary, but promises to be cruelly lasting, there being seemingly little prospect of cultivated Hydrastis drifting into market in the very near future, in quantity sufficient to bring the price to a normal condition. Without a doubt, cultivated Hydrastis must command a good

commercial return, but prices that prevailed in the olden times, of eight or ten cents a pound, will never again be accomplished.

In this connection, I again plead for government and state intervention in such directions as this. If it is proper to preserve a lingering group of bison, or to search the land over for our vanished wild pigeon, why is it not proper to conserve, with the help of the strong hand of authority, America's valued flora from absolute extermination?

THE AMERICAN PHARMACEUTICAL ASSOCIATION—ITS ORIGIN, RESULTS AND POSSIBILITIES.

JOHN F. HANCOCK, PHAR. D.

History is supposed to be a narrative of facts and events, arranged in chronological order, with an explanation of causes and effects.

It may be that some of the members of the American Pharmaceutical Association are not familiar with the causes and influences that brought the Association into existence and have made it a factor in the aims of those who are loyal to the highest ideals in pharmacy.

It has an interesting history that pays compliment to its founders and supporters.

The birth of the American Medical Association, whose members were practically interested in pharmacy, exerted an influence for the betterment of pharmacy and made possible official co-operation.

These two branches of medicine have been, and will always be, independent, and they should be harmonious in the endeavor to bring about the best results to both.

The American Medical Association was organized in 1847, and the American Pharmaceutical Association was organized in 1852. When the Medical Association came into existence, there were many medical colleges throughout the borders of its territory; when the Pharmaceutical Association was organized in 1852, there were within the limits of the United States, the Philadelphia, New York, Massachusetts, Maryland and Cincinnati Colleges of Pharmacy. These colleges, through their accredited delegates, were the active agents in perfecting the organization.

To revert to the primary object, it is necessary to make detailed statements of conditions then existing in the drug trade of the United States.

At this time, pharmacy was becoming more than ever a distinct and independent branch of medicine. Its commercial interest had become important and the colleges of pharmacy were educating students for a higher plane of usefulness.

In all the ages of the world, medicine, including its special branches of practice, has been, to a degree, in advance of the civilization of the times, and influenced by the advancement or retrogression of the learning and civilization of the ages.

It is doubtful that an unalterable science of medicine, or an unchangeable method of practice, will ever exist for a long period of time, but we may con-

gratulate ourselves in having advanced to a higher state of scientific and practical knowledge than has been known in the history of the past.

In the years since pharmacy, in the United States, has been detached from the office of the physician, marked improvements have been made in its practice and educational advantages have greatly increased.

One hundred years ago it was the custom of physicians in this country to compound and dispense prescriptions, and in many cases to make pharmaceutical preparations with the assistance of members of the family and servants, drawing their supply of crude drugs from the apothecary shops.

The "Bentztown Bard" gives a graphic word picture of the departure of the apothecary-physician, so genial and beloved by all the people of his day, when he was able to fully satisfy all the needs of medicine and pharmacy.

In the early years of the past century were found in the larger cities a few educated and well trained apothecaries, who came from the shops and schools of pharmacy in the old world, where law had provided the means of scientific and practical instruction. These men were recognized and encouraged by the best element of medical practice and soon became factors in building a strong foundation for pharmaceutical advancement in this country. All honor to these men, who made possible present conditions.

It must not be forgotten that the better class of physicians in the new world were glad to receive the assistance of qualified apothecaries, and in turn gave them every possible encouragement. From such influence the Philadelphia College of Pharmacy was suggested and brought into existence in 1821, and the first Journal of Pharmacy in 1829, both of which received valuable aid from physicians—the college with its faculty of physicians, and the Journal edited by a physician.

The success of this college and its Journal, with increasing strength and usefulness to the present, was an inspiration for the organization of colleges of pharmacy in other parts of the Union.

These two combined influences were the first step towards the organization of the American Pharmaceutical Association.

The college became interested in the condition of the drug market, and the Journal circulated the literature of pharmacy from all parts of the world.

The College of Pharmacy of New York was the next organization of pharmacists to give a helping hand. New York City, as a seaport and the metropolis of the nation, was the leading port of entry for foreign goods of all kinds, and largely so for drugs, and drug preparations soon became a point of interest because of the inferior quality of drugs imported into this country. The better class of physicians, pharmacists and druggists became mutually interested, and they found it necessary to seek the aid of the general government to protect the profession of medicine and the people from the abuses of corrupted commercialism in drugs, which abuses had been recorded in the American Journal of Pharmacy and in medical literature.

On the ninth of August, 1847, the New York College of Pharmacy held a special meeting to consider the best measures to prevent the introduction into the United States of sophisticated and misnamed chemical and pharmaceutical preparations.

Resolutions were adopted to call the attention of the Secretary of the Treasury to the fact that large quantities of spurious medicinal preparations were being introduced daily into this country, etc.

It was further resolved to invite the Philadelphia College of Pharmacy and other colleges of pharmacy and medicine to unite with them in presenting a memorial to Congress to devise means to suppress this most dangerous fraud, etc., etc.

In presenting a few of the many facts, the statement was made that bromide of potassium was imported and sold for iodide, some parcels being mixtures and others entirely bromide. The iodide was also frequently adulterated with large proportions of other salts. Many other cases were reported.

At a special meeting of the Philadelphia College of Pharmacy, November 1, 1847, a similar petition or memorial was sent to Congress, naming the many abuses, like those named by the New York College.

It was also resolved to send copies of the memorial that was adopted to the various colleges of medicine and pharmacy in the United States and request their co-operation.

On June 26, 1848, an "Act to prevent the importation of adulterated and spurious drugs and medicines" was approved by the President and became a law for the protection of the citizens of the United States, and a circular to that effect with instructions to the collectors and other officers of the customs was issued by authority of the treasury department.

But it was found that for some reason the object sought was not obtained in all cases.

There was need of a tariff standard for the guidance of drug examiners under the law, therefore further action was required by those directly interested.

The New York College of Pharmacy again became active. The board of trustees appointed a committee to investigate conditions.

The investigation suggested co-operation of all allied organizations, resulting in invitations being sent to the colleges of pharmacy of Boston, Philadelphia, Baltimore and Cincinnati, to send delegates to a convention to meet in New York City on the twenty-fourth of April, 1851, for the purpose of considering the importance of recommending standards for the use of drug inspectors, which it was proposed to bring before the third annual meeting of the American Medical Association, to meet at Charleston, S. C., on the sixth of May.

By resolution of the New York College, the report was committed to a delegation, and Dr. C. B. Guthrie was appointed to present it. But the Association, while in favor of such a tariff standard, regarded the hastily prepared report as being incomplete, and for that reason it was laid on the table.

The convention of colleges of pharmacy and others interested, after organization and transaction of important business, adjourned to meet in Philadelphia in 1852.

The convention of colleges of pharmacy, held at 511 Broadway, New York, on the fifteenth of October, 1851, will ever be an illuminated chapter in the history of American pharmacy. It was the culmination of important events and the beginning of a great career in organized pharmacy in America.

The convention was hastily called—not giving sufficient time to many who would have been present had time permitted.

On the register of that national pharmactutical convention are names that will always be remembered with reverence and respect. Those men had the keenest conception of pharmaceutical honesty and honor.

While the subject of standards for importations was under consideration, the pharmacists of the United States who were interested in the pharmacopoeal convention to revise and publish another Pharmacopoea, rendered all the assistance in their power to make the work successful. The men of the convention were pioneers in the cause of pharmaceutical progress and improvements, and had many more difficulties to contend with than is experienced by pharmacists at the present time; but they were able to establish a strong foundation and to pave the way for continued advancement. While our government has not exacted the uniformly high standards of European governments for the practice of pharmacy, individual ability may be found here equal to the most exacting demands of the governments of the Old World. No country has made greater advancement in a given time and none has greater promise for future development.

The convention of 1851 adopted a series of standards and rules for the examiners of drugs at each port of entry, and by resolution, the delegates of the New York College of Pharmacy were directed to present the published proceedings of the convention to the Secretary of the Treasury for his consideration.

The following were also discussed and adopted, viz:

“WHEREAS, To secure the full benefits of the prohibition of sophisticated drugs and chemicals from abroad, it is necessary to prevent home adulteration,

“*Resolved*, That this convention recommend to the several colleges to adopt such measures as in their respective states may be best calculated to secure that object.”

The convention adjourned to meet in the city of Philadelphia, on Wednesday, October 6, 1852.

The President of the Convention, Dr. C. B. Guthrie, of New York, on taking his seat to preside over its deliberations, extended thanks for the honor of being called to preside over the first convention of the kind ever assembled in the United States.

On the sixth of October, 1852, at 4 p. m., the adjourned convention assembled in the hall of the Philadelphia College of Pharmacy, on Zane street. At this meeting delegates attended from the following organizations:

The Massachusetts College of Pharmacy.

The New York College of Pharmacy.

The Richmond, Va., Pharmaceutical Society.

The Cincinnati College of Pharmacy.

The Philadelphia College of Pharmacy.

The Maryland College of Pharmacy.

Reports of the meeting in New York were received and acted upon, resolutions adopted and new officers elected and business in regular order was dispatched.

The business committee reported the draft of a Constitution, which was debated, amended and adopted. It was at this meeting the name was changed

from National Association to its present title, "The American Pharmaceutical Association."

Under this broad and comprehensive name may we wish it a long and useful life, waxing stronger as the years multiply.

In the year of its permanent organization and the subsequent years of its infancy and youth, it was nurtured by those who had the strength and will of earnest manhood. Now that it has grown to maturity it stands a power of usefulness significant of the best there is in pharmaceutical organization. What is needed now is the loyal support of its membership. If its members continue to be as true to its aim and purpose as were those who have passed away, no one may need to blush for its character and reputation. It would be needless to relate in detail what it has done for those most interested in pharmaceutical progress. Those who wish to know more of its history than has been revealed through its published annual proceedings, should attend its annual meetings and see those men who stand for what is best for pharmacy, giving their time and earnest work from one meeting to another. Those who attend the annual meetings and read the published proceedings must realize that the united efforts of the higher type of men in pharmacy are exerting a good and useful influence in a department of science that should appeal to the better nature of man.

The report on the progress of pharmacy will more than compensate the practical pharmacist, who pays his annual dues to the Association.

What has been accomplished for the benefit of pharmacy, pharmacists and druggists, by the active membership of the Association must indicate the promise for the future.

In pharmacy and its collateral branches of commercialism, changes must come, relative to the changes that come in all branches of industry. The older members of the fraternity have witnessed the changes that have come to pass in the last fifty years—some for better, some for worse. Those on the Watch Tower should carefully observe and endeavor to ward off the evil and invite the good; for pharmacy should be considered in a practical sense as largely humanitarian, be it professional or commercial. There is no reason why commercialism should not be as honest and respectable as professionalism can possibly be. One term does not signify honesty and competency more than the other.

Therefore, to judge the future by the past, we may be hopeful that in this age of higher scientific knowledge and industrial development, the future of the American Pharmaceutical Association gives greater promise than has been possible in the past.

But in the roll of its honored members, when calm judgment shall have estimated the difficulties and disadvantages of the past in comparison with the present developments and advantages, and the anticipated increase of opportunity in the future, we should not indulge a less regard and esteem for the strong men who stood in the front ranks and bore with fortitude their heavy burdens. Their individuality, perhaps, was made strong by stern difficulties, and all the more invite our admiration and applause.

Without disparagement of any one of those who were present and assisted in organizing the American Pharmaceutical Association, the name of one who contributed largely to effect the organization may with propriety be mentioned at

this time, the name of William Procter, Jr., the Father of American Pharmacy—the one single individual who did more substantial work for the betterment of pharmacy in America than any other individual member of the fraternity.

For years before the organization, he had been quietly but earnestly at work with the preliminary elements of the Association. In 1831, he began his apprenticeship in the study of pharmacy. From the time of his graduation to the year of his death, he regularly contributed valuable papers published in the American Journal of Pharmacy. In 1841, he was appointed secretary to the committee on revision of the U. S. Pharmacopoea. In 1844, he opened a pharmacy at the southwest corner of Ninth and Lombard streets, which continued under his ownership and management to the time of his death. In 1846 he was elected Professor of Pharmacy in his alma mater, the first pharmacist to hold a professorship in the oldest college of pharmacy in America.

In 1846 he assisted Prof. Joseph Carson as co-editor of the American Journal of Pharmacy. In 1850 Prof. Carson resigned, and Prof. Procter succeeded him in editorial management of the Journal. A reference to the Journal and the proceedings of the American Pharmaceutical Association will demonstrate the value of his life to pharmacy.

THE MANUFACTURE OF GALENICALS BY THE RETAIL PHARMACIST.

Its Possibilities and Limitations.

HENRY C. BLAIR.

Pharmacy, according to Professor Remington, is the science which treats of medicinal substances, and comprehends not only a knowledge of medicines and the arts of preparing and dispensing them, but also their identification, selection, preservation, combination and analysis.

Accepting this as a correct definition, it follows that a pharmacist is one who knows theoretically and practically these arts.

It does not follow that he must practice these arts, or all of them, in the case of every medicinal substance that he uses in his business, though this seems to be the opinion of some writers.

On the other hand, a man who works in a drug store and who does not practice the arts of the profession can not be considered a pharmacist.

Where, then, shall the line be drawn? In order to serve the public properly, to derive from his business the largest return, and to practice pharmacy as a profession, the following rule in relation to galenicals will serve as a guide to the conscientious pharmacist:

Manufacture all galenicals unless they can be procured of a better quality than you can make or unless they can be purchased for a less price than they cost you to make, quality being equal.

The retail pharmacist should make the following galenicals because he can

do so just as well as the large manufacturer and at a much lower price than he must pay anyone else:

Waters, solutions, syrups, honeys, mucilages, emulsions, mixtures, glycerites, spirits, elixirs, collodions, liniments, infusions, decoctions, most tinctures, wines, vinegars, powders, triturations, masses, confections, pills, troches, cerates, essences, ointments, hypodermic tablets, compressed tablets, and filled capsules.

Of course, there are exceptions in each of these classes.

In the waters, we except rose, orange flower and cherry laurel for these can be made where the flowers can be procured in a fresh condition of a better quality than those made in any other way.

In the solutions, nitroglycerin for obvious reasons.

In the spirits, frumenti for government reasons. Likewise, wines.

Gelatin, sugar, and chocolate coated pills cannot be made on a commercial basis by the retail pharmacist, and in the opinion of the writer no physician who gives his patient proper advice will order these except in rare instances, where the medicine is extremely disagreeable, or for some other equally good reason.

Every pharmacist should have a machine for making compressed tablets. Any ordinary medicine ordered in a tablet may be made by a hand machine in a few minutes, and while the expense, in time, may be much greater than the cost of a ready-made tablet, the freshness of the medicines and softness of the tablet (less compression) will be sufficient to warrant the proceeding, and when the doctor and patient know that this is the practice, remuneration without objection will follow.

In the writer's opinion, compressed tablets are the poorest form of administering medicines.

For about two dollars a mould for making tablet triturates can be purchased; it requires only about fifteen minutes to make one hundred triturates. These are much more soluble than compressed tablets.

When business is slack, triturates can be made up for stock (such as will not deteriorate by keeping), and special formulæ on prescription can be made so quickly that pharmacists should be prepared to do this work and so notify their physician friends.

The cost is considerably less than that charged by manufacturers.

Plasters, except the ready-made kind, are used but seldom. This is largely due to the fact that physicians do not know or have forgotten that a pharmacist can make plasters. For many purposes and for many reasons, specially prepared plasters are far superior to the factory-made ones, and if the matter is properly brought to the attention of the medical profession, they will again come into use.

It will be noticed that extracts, powdered, solid and fluid, are not mentioned in the foregoing list of galenicals. The reasons follow:

The average retail pharmacist uses a great many extracts, but comparatively little of any one. Unless he can use a large amount of any one the cost of making will be from two to ten times the price he must pay a manufacturer for them.

Unless he has apparatus and facilities, which include a vacuum pan and condenser, he cannot make them of as good quality as the large manufacturer.

The writer does not know of any retail pharmacist having a vacuum pan.

Therefore, these extracts are left out of the list of galenicals that a pharmacist should make.

Exceptions also must be made to the following tinctures: Aconite, belladonna, hyoscyamus, physostigma, stramonium and possibly cinchona, nux vomica and opium.

Unless a retail pharmacist uses large amounts of these and becomes expert enough to properly and accurately assay them, it does not pay, either financially or morally, to make them.

His cost of assaying makes them come to a much higher figure than that charged by the large manufacturer; and the writer has yet to see the active retail pharmacist who can afford time from his other work to make an assay every time it is required; the result being that this work must be left to an employe, possibly a college student, who can not be expert enough to be relied upon. On the other hand a reliable and trustworthy manufacturer employs expert chemists who are making assays every day and who become so expert that there is never and doubt as to their findings. In fact, most reliable houses make a number of assays of each lot of product, and these must correspond, thereby establishing beyond a doubt the exact strength.

Our state and federal laws require these tinctures to conform to the U. S. P. and, even if manufacturers were inclined to be dishonest, the chances are that they would not jeopardize their business by sending out unassayed tinctures.

There is no reason why a pharmacist should not purchase these preparations, any more than there is a reason why he should make his own chemicals, such as hyoscine, digitalin, iodoform, phosphorous or carbon bisulphide.

Certainly he should know how to make them and assay them, just as he should know how chemicals are made and tested, but when the cost of production and the end results are considered, it would be absurd, from a business point of view, for him to do so. If a retail pharmacist purchases his extracts or tinctures from another manufacturer he should assure himself that the manufacturer employs first-class chemists—then he should occasionally make tests or assays to see that he is getting standard preparations. If he finds that he is not, he should notify the manufacturer, who should replace the article complained of with first-class goods and pay all expenses, including costs of testing. Otherwise, the retailer should notify the state and federal authorities and sue for damages. One or two cases of this kind would be of signal benefit to the public.

Reputable manufacturers are always glad to have their attention called to their goods in case of a mistake or of an article found to be inferior, and to "make good" if they can do so.

Recently when a manufacturer sold to the writer an enzyme preparation, for which no test is given in any text book, but which did not respond to the test applied as it should have done, the manufacturer supplied a new lot at no cost to the writer, even though the test used was not that in use in the manufacturer's laboratory.

The galenical part of our business is not different from the drug or chemical part; we are advised by some writers that unless a man makes all his own galenicals, including extracts, he is no pharmacist, yet these same men ignore the chemical issue. Is there anyone so foolish as to think that a pharmacist

should make his own chemicals? Is it not just as ridiculous to expect the retailer to make galenicals that require even more complicated and expensive apparatus and more accurate manipulations?

When the question of assay enters into the value of a galenical, is it not better to rely on the expert chemists than to risk the health and even lives of the public by attempting to apply that part of our theoretic knowledge which is so little used that we cannot become expert?

We believe the answers to these questions by practicing pharmacists can be only in the affirmative. If a galenical requires apparatus for making or facilities for assaying or testing that are beyond the reach of the pharmacist, he is justified in purchasing such galenicals from the large manufacturer just as he purchases the alkaloids, and other chemicals.

THE PHYSICIAN AND THE PHARMACIST.*

W. A. PUCKNER.

Physicians need pharmaceutical advisers—those whom they may consult concerning desirable methods of preparing medicines for administration, their incompatibilities and similar questions, upon which it is difficult for physicians to keep posted. During recent years many physicians have been inclined to forsake their corner druggist, because he has been tried and too often found wanting, and have pinned their faith to pharmaceutical manufacturers and promoters of specialties and their detail men. Dependence on the specialty proprietors has, however, been disastrous—so disastrous that well informed physicians will have no more of the detail men.

The recent reports of Council on Pharmacy and Chemistry of the American Medical Association and of the Association's chemical laboratory demonstrate amply that entire dependence cannot be placed on manufacturing pharmacists and their endless assortments of ready-made tablets, elixirs and syrups.

While it has not been the aim of the American Medical Association in its propaganda for honest medicines to specially favor the retail pharmacist and to work in his interests, its publications are such that the retail pharmacist could use a large part of them as arguments that he deserves the confidence of the practicing physician. The recent reports from the Association's chemical laboratory giving the results of examinations of tablets of bismuth, phenol and opium and of certain compound digestive tablets might well be used by the pharmacist as an argument to physicians, that instead of using the thousand and one ready made tablets offered by manufacturers, it would be to the advantage of the physician as well as the patient if, instead, he would prescribe remedies to be put up by the pharmacist. Again, the reasons given by the Council on Pharmacy and Chemistry for not recognizing the chemical substance, quinine arsenate, can be used by the pharmacist as another argument why the physician should write prescriptions. Quinine arsenate, it should be stated, was rejected

* Read at the Meeting of the City of Washington Branch, December 20, 1911.

by the Council because it was held that this compound containing both quinine and arsenic was such that it could not be used in quantity to get an efficient dose of quinine without getting too much arsenic, or if used for its arsenic value, its quinine content was too small to be of any use. Instead, it was suggested that physicians had better combine quinine and arsenic in their prescriptions in the quantities that are adapted to the needs of the individual patients. While quinine arsenate is a definite chemical substance the arguments given against its use will apply to most proprietary mixtures. As another illustration of the possibilities which lie before pharmacists, a recent discussion in the *Journal* of the American Medical Association regarding the investigation of Ergot preparations carried out by Edmunds and Hale in the Hygienic Laboratory of the United States Public Health and Marine Hospital Service may be taken. This examination showed in the first place that the proprietary preparations of Ergot claimed to be wonderfully reliable, potent and permanent, possessed none of these qualities. The examination further showed that fluidextracts made by different firms, although claimed to have been standardized physiologically, on the other hand did not compare favorably with a fluidextract made in a small way by the authors. It is interesting to note that the *Journal* of the American Medical Association in commenting on this work editorially, suggested that

"Such results suggest that a reliable pharmacist following the official method may be able to supply the physician with as good preparations as the large manufacturing houses, or even better."

In other words, the editor evidently believes that the time when the pharmacist might with advantage make his own fluidextracts has not passed, even in the case of such a drug as Ergot.

Happily, there are signs that pharmacists are awake to the tendency of the times and are making efforts to devote more attention to the professional side of their profession; and, as a result, there is a tendency on the part of physicians to go back to the old times, and once more get in touch with their druggist. The pharmacist, however, must realize that physicians need *real pharmacists* as advisers and not druggists, who, while prominent at "get-together dinners" with talk of U. S. P. and N. F. Propaganda, neglect their prescription counters to prepare grewsome "patent medicine" displays and advertising dodges in their front windows.

An illustration that pharmacists do not always appreciate the needs and demands of physicians was given some time ago by an editorial discussion in a drug journal in which was lauded as a shining light, one of the class of druggists who would "work" the doctor as did the detail men in the past. This drug seller decorated his front window with a sign which read:

"IF YOU HAVE NO FAMILY PHYSICIAN,
LET US RECOMMEND ONE."

To supply the desired name of the proposed physician to the unwary passer-by who might be attracted by the sign, this seller of drugs placed the name of all doctors in his neighborhood on cards, shuffled them and then "dealt," so to say, "from the top of the deck," when his advice was asked. The drug journal says:

"The list of doctors in the store includes about a score of names and addresses

of efficient physicians residing in the vicinity of the store, and, in recommending them, a system of rotation and alternation is employed. Having recommended one doctor, the clerk crosses off that physician's name, and when the next request for a good physician is made, he selects the doctor whose name appears next on the list."

It appears that the drug seller feels proud of his Paris-like judgment and the drug journal apparently believed that physicians were devoutly thankful for the recommendation thus given. This much may be said of this seller of drugs: His advice is on a par with that which he gives when he recommends a "patent medicine," the composition of which he is ignorant, for a disease that he does not understand.

The plan proposed by this druggist is, of course, an insult to the medical profession, and it is evident that this has been generally appreciated, for the scheme does not appear to have found favor.

I am convinced that physicians fully appreciate the help which pharmacists can give them, and it only remains for the individual pharmacist to go to the individual physician and demonstrate that he is the one that may be relied on. This plan of procedure, I am sure, promises much good both for the pharmacist and the physician, and is my excuse for presenting this thought at this time.

PHYSICAL CONSTANTS OF THE U. S. P.*

G. H. MEEKER, PH. D., LL. D.

The historical and other introductory matter of the eighth revision of the U. S. P., together with the current federal and state pure food and drug legislation and the miscellaneous evidences of collaboration between the federal government and the revision committee, permit us to perceive how the pharmacopoeia has grown from the modest empiric beginning of 1820, then representing the more progressive pharmacologists of the Atlantic seaboard states, to its present position as the official scientific definer of the drug standards for the whole American public.

The present Pharmacopoeia bears internal evidence that the revision committee has spared no pains in endeavoring to produce scientific accuracy throughout; yet improvements can be, and no doubt will be, made in the ninth revision. It is the purpose of the present paper to point out certain important general improvements and some minor specific improvements which, in the author's opinion, should be made with reference to the physico-chemic data of the ninth revision as compared with the eighth revision.

A treatment of the subject, "The Physical Constants of the U. S. P.," would directly or indirectly require the consideration of:

1. The fundamental unit of length.
2. The fundamental unit of mass.
3. Other units related to 1 and 2—especially of volume and mass.

* (Prepared at request of the Scientific Section of the Philadelphia Branch A. Ph. A., and read before that body December 5, 1911.)

4. The standard scale of temperature.
5. Normal temperature and pressure.
6. Official temperature and pressure.
7. The crith.
8. The official coefficient of thermal expansion of gases.
9. Official specific gravity.
10. The density of water at 25° C.
11. The table of relative atomic masses.
12. The official data for solubilities.
13. The official data for melting points.
14. The official data for boiling points.
15. The official data for optical rotatory power.
16. Data for weights in vacuo.
17. Water of crystallization.
18. Normal "air-dry" moisture.
19. Chemic formulæ—especially structural.
20. The certification of weights, volume measures, thermometers and polarimeters.
21. Recalculation of stoichiometric data for preparations and assays.
22. Methods for fixing the exact strengths of volumetric solutions, especially alkalies and acids.
23. Miscellaneous topics, such as normal impurities in vegetable oils, iodine number, saponification value, etc.
24. Methods for making determinations of temperature, melting point (or freezing point), boiling point and optical rotatory power.
25. Improvement and amplification of the tables of the Pharmacopoeia.

The labor involved in a thorough examination into all of the points concerned in the foregoing tabulation is so great that for the purposes of this paper it has not been attempted. However, a painstaking examination of the U. S. P., combined with the lessons taught by experience with the Pharmacopoeia in its treatment of the points at issue, carries the conviction that on the whole the physico-chemic data of the U. S. P. are satisfactory in scope and trustworthy in accuracy. Nevertheless, one can observe shortcomings; and some of these are noted below.

I. IMPORTANT IMPROVEMENTS.

Needed reforms in the premises may be tabulated and discussed as follows:

(a) The complete and unequivocal adoption of the principle that the standards of the United States Bureau of Standards shall be, in so far as they are applicable, the official standards of the U. S. Pharmacopoeia; and that all sets of weights, volume measures, thermometers and polarimetric apparatus authorized by the U. S. Pharmacopoeia shall only be official when they have been certified by the U. S. Bureau of Standards.

(b) The eighth revision is particularly delinquent in the looseness of its provisions for temperature measurements. Anyone who has had to do with temperature measurements knows how easily these measures may go astray; and since the determinations of melting points, specific gravities, etc., are exceedingly important provisions of the Pharmacopoeia, the question of temperature should be

handled in a strictly scientific manner. We find the following definition of temperature on page LIII of the Pharmacopoeia:

"When there is occasion to indicate the degree of temperature, the scale of the centigrade mercurial thermometer, or in its absence that of Fahrenheit's thermometer, is employed.

The Bureau of Standards (see bulletin of the Bureau of Standards, Vol. III, 663 et seq., 1907), has the following to say concerning the definition of temperature:

Resolution of the International Committee on Weights and Measures, adopted October 15, 1887:

"The International Committee on Weights and Measures adopts as the standard thermometric scale for the international service of weights and measures, the centigrade scale of the hydrogen thermometer, having as fixed points the temperature of melting ice (0°) and of the vapor of distilled water boiling (100°) at standard atmospheric pressure, the hydrogen being taken at an initial thermometric pressure of one meter of mercury—that is to say, $1000 \div 760 = 1.3158$ times the standard atmospheric pressure."

The scale adopted in this resolution refers to the scale defined by a certain standard hydrogen gas thermometer in the possession of the International Bureau of Weights and Measures at Sevres. This scale was compared with the scale defined by certain mercurial thermometers of French hard glass (*verre dur*), eight of which were sent to the United States to accompany the American prototype kilograms and meters. The scale defined by a mercurial thermometer is the temperature found after correcting the observed readings for various sources of error inherent in the mercurial thermometer. The values of these corrections have been accurately determined for the above standard mercurial thermometers of the United States Bureau of Standards, which thus serve as the working standards of the United States for fixing temperatures on the international hydrogen scale.

It is recommended that the revision committee employ the above definition for temperature, and avail themselves freely of the information contained in Circular No. 8 of the U. S. Bureau of Standards.

(c) Since the determination of melting points, boiling points, temperatures generally, and optical rotatory power are so important in the Pharmacopoeia, it is believed that the Pharmacopoeia should state official methods for making these observations. Everyone who has had to do with these tests knows the great desirability of specified procedure in the premises.

(d) The Pharmacopoeia should follow the custom universally adopted in scientific publications by citations of the original sources for its data. This necessity cannot be too strongly urged. If one examines physico-chemic tables such as the Smithsonian and those of Landolt, Castell-Evans and Beilstein, and the many tables as well as the original papers of investigators scattered through the various journals, one is impressed by the variation in the values given for melting points, solubilities and optical rotatory power. While it is believed that throughout the Pharmacopoeia authorities should be stated for all of the data included—with respect to melting points, boiling points, solubilities and optical rotatory power, it would appear to be particularly necessary for the Pharma-

copoeia to state the authority which it has accepted for each of its stated values. Melting and boiling points and optical rotatory power being particularly relied upon as tests for purity and identity of various substances of the Pharmacopoeia, it is only just and proper that an intelligent profession should not be compelled blindly to accept the present arbitrarily stated values. The remarks which have been made upon the subject of melting points, boiling points, solubilities and optical rotatory power apply also to miscellaneous special data such as physico-chemic constants of oils and other semi-controversial matters.

Obviously the purity rubric plays an important role here; and it is suggested that two sets of data should be given—one pertaining to the pure substance, and the other showing the permissible limits of the physical constants. The eighth revision appears to have at times stated melting and boiling points applicable to the pure substances only, whereas intending (as the purity rubric shows) to permit tolerable impurity. The intent of the Pharmacopoeia is thus brought into conflict with its provisions. It is here further suggested that freezing points might often be substituted for melting points with great advantage. This is already done in the eighth revision in the case of Phenol.

II. MINOR IMPROVEMENTS.

(e) With respect to the fundamental unit of length, the statement on page LIV of the Pharmacopoeia that "the value of the United States National Prototype Standard Meter is identical with that of the International Standard Meter derived from the *Mètre des Archives*" is not strictly accurate. In the first place, the inference would be drawn that there is but one United States National Prototype Standard Meter; whereas, of the prototype meters which were distributed to the governments contributing to the International Bureau of Weights and Measures, the United States received Nos. 27 and 21. No. 27 was the first received, and is the one which has been in actual use by the United States Government—No. 21 being held as a reserve. When the group of International Prototype Meters were prepared, the International Bureau selected No. 26 as being most nearly identical with the *Mètre des Archives* from which all of the prototype standards were derived; and this No. 26 is preserved at Sèvres as the real international standard meter. When compared in 1888 with the United States Prototype Standards Nos. 27 and 21, the value of No. 27 was given as 1 m.—1.55 microns @ 0°C.

About 1904 the United States Government made a recomparison of No. 27 with No. 26, and the value then determined was 1 m.—2.00 microns @ 0°C. However, the 1888 value has been retained as the official value of United States Prototype Standard Meter No. 27, and the Pharmacopoeia should so state.

On April 5, 1893, by executive action, the international meter and kilogram were declared the fundamental standards of length and mass for the United States for both metric and customary weights and measures; and the official relationship then established between the yard and meter is as stated on page LIV of the U. S. Pharmacopoeia. On this page the Pharmacopoeia says, rather loosely, concerning the kilogram that "the United States National Prototype Kilogram, like the International Standard Kilogram, is derived from the *Kilogramme des Archives*." The complete statement would be that the United States is in possession of Nos. 20 and 4 International Prototype Standard Kilograms.

Of these two No. 20 has not been used, No. 4 being the active standard. No. 4 is not exactly 1 kilogram, but is 1 kg.—0.75 mg. The publications of the United States Bureau of Standards give as the relationship between the pound avoirdupois and the kilogram, the following:

$$1 \text{ lb. avoirdupois} = 0.453592477 \text{ kg.}$$

which would seem to be a better method of statement than that employed in the Pharmacopoeia, viz., 700000000/1543235639 kilogramme.

Authoritative information on the above points concerning the fundamental standards of length and mass are to be found in the publications of the United States Bureau of Standards, but particularly in the Bulletin of Standards, Vol. 1, page 19 et seq., 1904, and in Circulars Nos. 1 and 17 of the Bureau of Standards.

(f) Under the topic of Gasometric Estimations, in the Pharmacopoeia, certain official values should be stated. Normal temperature and pressure should be clearly defined, and an official value for the crith should be stated, so as to relieve the ambiguities which now exist in this portion of the Pharmacopoeia. Also at any portion of the Pharmacopoeia where gas calculations are involved in the assays, the factors employed should be clearly specified. To illustrate the present ambiguity of the pharmacopoeial gas calculations, it may be mentioned that under assay of solution of hydrogen dioxide the calculations concerning the volumes of available oxygen is made really at normal temperature and pressure and not at the official pharmacopoeial temperature, 25° C. This truth, however, only appears by inference when one checks the calculation. Furthermore, in the calculations upon the assay of spirit of nitrous ether, one does not find, except inferentially, any statement for the value of the crith. It is believed that the Pharmacopoeia should adopt for the value of the crith 9/100 of a gram, which is not only a convenient value, but also the value accepted by the Smithsonian Institution (see page 89 of Smithsonian Physical Tables, 3d edition). It is further recommended that in general, when the Bureau of Standards has no official data, the Smithsonian data shall be the guide in determining the official pharmacopoeial data. In this connection, since there is so much doubt as to the exact value to be assigned to the coefficient of thermal expansion of gases, it is suggested that the most convenient official coefficient would be .00367 for each degree centigrade, unless it be desired to state a special coefficient for each kind of gas upon which pharmacopoeial calculations are made.

(g) In so far as we have examined those calculations of the Pharmacopoeia involving the determination of mass from stated volumes and specific gravity, the loose assumption is made that the pharmacopoeial specific gravity gives the mass of 1 cc. of the official liquid. The Pharmacopoeia should state a rule for determining mass in this connection, which rule should be based upon the statement that 1 cc. of water at 25° C has a mass of .997 grams. (See Smithsonian Physical Tables, 3rd edition, page 92.) The rule would read substantially, "The mass, in grams, of 1 cc. of any pharmacopoeial liquid is found by multiplying the officially stated specific gravity by .997." Perhaps it would be wise to add a table of masses of unit volumes of official liquids.

(h) With regard to the vexed question of the values to be assigned in a table of atomic masses of the elements, it is believed that a table based upon oxygen=16

would be much more convenient than the present table in the Pharmacopoeia, and that the Pharmacopoeia should further declare that the official table of atomic masses shall be the last revised table issued by the International Committee on Atomic Weights. So much time elapses between the successive issues of the Pharmacopoeia that noticeable changes may have occurred in the table of atomic masses; and thus, in 1912 we still find ourselves using the table adopted by the International Committee for 1904.

(i) Rarely one finds discrepancies in statements concerning water of crystallization. For example, one may note the various statements encountered in the Pharmacopoeia with respect to the water of crystallization in mercurous nitrate (pages 530 and 589).

(j) From the introductory remarks of the Pharmacopoeia one can infer that of the tolerated innocuous impurities permitted under the various purity rubrics, unless otherwise stated the impurity is taken to be moisture. This, however, is inferential, and the pharmacopoeial statements should be everywhere explicit rather than implicit. It would be an excellent thing if the next revision of the Pharmacopoeia included explicit statements wherever necessary concerning what is considered to be the normal amount of moisture in the respective "air-dry" substances.

(k) Referring to the stoichiometric data underlying the various assays and preparations of the Pharmacopoeia, one occasionally meets with slight inaccuracies or inconsistencies, and it would seem as if this work should all be reparcelled out for recalculation.

(l) The pharmacopoeial methods for adjusting the strengths of volumetric solutions of acids and alkalies appear to be too narrow. Everything is functioned upon the preparation of normal potassium hydroxide solution against purified cream of tartar as a standard substance. This is indeed an excellent method; but it is faulty in that there is no safe check upon the purity of the potassium bitartrate—and, aside from this, any error made in adjusting the normal potassium hydroxide would be perpetuated throughout the series of alkalies and acids. It would appear that a much safer procedure would be to have each alkali and acid made *directly* and *independently*—using for alkalies pure potassium bitartrate and pure potassium tetroxalate as standard substances mutually checking each other, and for acids pure sodium carbonate and colorless, transparent Iceland spar as standard substances; and having in addition the cross-check between the acids and alkalies thus independently prepared. In this way faults in one standard substance would be detected through lack of agreement with the other standard substances; and each standard solution being made independently of the other, manipulative errors in the preparation of one would not be perpetuated through the series. For the standardization of N_{10} $KMnO_4$ the pure sodium oxalate to be furnished by the U. S. Bureau of Standards (see Bureau Circular No. 26, p. 8) would appear to be the most advantageous standard substance. Pure arsenous oxide is recommended as the standard substance for testing volumetric iodine solutions.

(m) Regarding the question of improvement and amplification of the tables of the Pharmacopoeia, reference should be given to the original sources from which the tables were derived. In the alcohol table a very useful addition would be a

column showing the "proof" of the spirit. Since in the commercial world from which the pharmacist obtains his alcohol the traffic is conducted on the basis of the "proof," it would seem very desirable for the pharmacopoeial alcohol table to contain such a column.

In conclusion it may be said that the foregoing discussion makes no pretense of being complete; but it is hoped that it contains timely suggestions which may prove of value.

MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA.

IS THE PHARMACIST EQUAL TO THE DEMANDS OF THE AGE?

"Another development of pharmaceutic demand is well illustrated by salvarsan. This is the year 1911. More is required of almost every profession and trade in this year than in 1811, vastly more than in 1711. It ought to be possible to send a prescription for salvarsan, ready for use, to any drug store, in 1911, with the same confidence of its prompt and proper preparation, as for laudanum in 1811. Einhorn's heads and packets for intestinal tests belong in the same category. Salol and keratin coated pills are another example. Suppositories and bougies of gelatin, cocoa butter, etc., are another. The fact that expensive and troublesome apparatus for preparing salvarsan are advertised in medical journals to physicians shows that the pharmacist is blinding his eyes to a proper and ultimately profitable extension of his scope.

"The words pharmacist and chemist used to be almost synonymous. Can the physician telephone to his druggist for a deci-normal solution of sodium hydrate, or a 1 per cent solution of a reagent or drug for local use, and be sure of accuracy? Some time ago, we wrote a prescription for a certain extract, in definite amount. We weighed it in its container, soaked it in alcohol, dried and weighed the box and label, subtracted, and found an error of 25 per cent.

"Has the druggist even weights and scales and graduates of sufficient accuracy for even approximate clinical determinations? Can he analyze urine in a suspected case for arsenic or morphine—fairly simple chemic examinations? Can he prepare extemporaneously, chromic catgut, aseptic dressings, etc.?

"We are writing in no fault-finding mood. We merely wish to impress on the pharmaceutic profession that there is a vast field of usefulness and profit requiring a development of special skill, along logical lines and into which it is practically forcing the medical profession to enter. And, meantime, the former profession is complaining of the non-support of the latter and trying to entice him back by a display of elixirs and 4-ounce mixtures which are almost out of date and which any one with a fairly accurate balance and a 25-cent graduate can compound."—*Buffalo Medical Journal*.

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

A NEW METHOD OF ASSAY FOR ALKALOIDAL FLUIDEXTRACTS.

CHARLES H. LA WALL.

While recently experimenting in the effort to devise a method of assay for fluidextract of colchicum seed I thought of trying the sodium chloride method of salting out objectionable constituents as previously used by me in the method of determining benzoic acid in catsup. (A. J. P., April, 1908, p. 171.)

A number of plans were outlined and tried and a method was soon found, which, when applied to a number of fluidextracts that had been previously assayed by the standard methods, was found to give results practically identical with those previously obtained in each case, with a reduction of about 50% in time, labor and solvents required. The method is as follows:

Dissolve 25 Gm. of sodium chloride in a 100 Cc. graduated, stoppered cylinder, in enough water to make 85 Cc. Add 10 Cc. of the fluidextract to be assayed and then make up the volume to 100 Cc. Agitate well for about one minute. Let stand for five minutes, agitate again and pour on a dry filter. Collect 50 Cc. of filtrate, representing 5 Cc. of fluidextract, and shake out with the proper amounts of the appropriate solvents, as directed for the final extraction of the alkaloid.

It is sometimes, although not always, necessary to return the first portion of the filtrate which comes through cloudy, collecting only clear filtrate for the final extraction.

The sodium chloride, in approximately saturated solution, as in this case, throws out fat, resins, chlorophyll and particularly all substances that are commonly extracted with immiscible solvents such as chloroform and ether.

I have been making alkaloidal assays for a number of years but I have never obtained cleaner final residues than are obtained by this method. The gravimetric and volumetric results check up very closely and the alkaloid is frequently beautifully crystalline.

In such drugs as colchicum seed, physostigma and nux vomica, where there is a large amount of fat present, I have found it necessary and advisable to add 10 Cc. of a 10 per cent. solution of alum in place of part of the water used to dissolve the salt, but I prefer not to use the alum unless necessary, as there is a greater tendency to emulsification when the immiscible solvent is shaken up with the liquid.

The filtrate in most cases is a straw yellow or brownish yellow color, even when very green fluidextracts are used.

The simplicity of the method and its ease of application should recommend it for adoption wherever possible. The only instance among the numerous

samples tried, a list of which is appended, when no satisfactory results could be obtained, is with the fluidextract of cinchona, and in this case the difficulty is not in obtaining a clear filtrate but in the fact that the alkaloids seems to be held back and there may be found the means of overcoming the difficulty in this one case.

In the case of the fluidextract of guarana it was found necessary to cut down the amount of fluidextract used to 5 Cc. and to slightly acidulate the sodium chloride solution, probably to break up the tannin-alkaloid combination.

The use of this process permits assays to be made with surprising speed, as indeed can be understood when one appreciates the fact that only a single and final extraction is required after the precipitation and filtration, which takes not over 10 or 15 minutes from the beginning of the process and that the alkaloid is then ready for gravimetric or volumetric determination or both, as may be desired. The following results have been obtained since the first trial of the process, which was only a few days ago:

	U. S. P Method	Sodium Chloride Method
Fluidextract of Aconite Leaves	0.25	0.24
Fluidextract of Aconite Root	0.44	0.44
Fluidextract of Belladonna Leaves	0.38	0.38
Fluidextract of Belladonna Root	0.52	0.54
Fluidextract of Calabar Bean	0.12	0.13
Fluidextract of Guarana	3.68	3.74
Fluidextract of Ipecac	1.76	1.82
Fluidextract of Cola	0.82	0.83
Fluidextract of nux vomica (total alkaloids).....	1.70	1.75

These are sufficiently varied in type to indicate that the process has a wide range of application and its publication without further experiment at this time is deemed advisable in order that it may be tried out by others and thus be made available for pharmacopoeial recognition, if merited.

A method of precipitation and filtration of an aliquot portion for shaking out is already employed with success in the official method of assay of fluidextract of hydrastis where potassium iodide is used as the precipitating agent.

SOME QUERIES ON ALKALOIDAL ASSAY.

W. A. PEARSON.

Much good work has been recently presented on alkaloidal assay, and it is reasonable to expect that much more satisfactory and accurate methods will be inserted in the next Pharmacopoeia of the United States.

There are a few differences of opinion in regard to technique, however, that should be agreed upon before uniformity is to be expected

Query No. 1. Amount of Moisture in Drug.

Crude drugs are not, as a rule, assayed in the exact condition in which they are received. Frequently they must be dried before they can be ground and this loss of water may amount to as much as 30 per cent. Is it advisable to

compute the results obtained to correspond to the original condition of the drug or to the moisture free basis?

Query No. 2. Fineness of Powder.

It is well known that when a powder is ground, all of the particles are not of equal size and that if all the drug is ground and only the particles of a certain size are taken, the sample will not be a representative one.

Would it, therefore, be advisable, instead of stating that the powder should be of a certain fineness, to state that it should be at least of a certain fineness or between certain limits of fineness?

Query No. 3. Temperature.

In certain alkaloidal determinations the temperature plays an important part, in the results obtained. For example, in the assay of opium, the crystallization flask is directed to be set aside in a *moderately cool place*. No limits are given in U. S. P. for "moderately cool" and this temperature has been variously interpreted by different analysts. It is certain that much larger crystals are obtained near 0° C than at slightly higher temperatures; it therefore seems important to ask what influence does temperature have upon the results of an alkaloidal assay?

Query No. 4. Fumes.

Free alkaloids very readily combine with acids, and the analytical laboratory contains fumes of hydrochloric or nitric acids. Before the delicate titration of an alkaloidal residue is made there seems to be danger of these fumes combining with the alkaloid and lowering the results. To what extent does the fumes ordinarily present in the laboratory influence the results of an alkaloidal assay?

Query No. 5. Indicators.

It has been claimed by the analysts in one laboratory that cochineal is the best indicator for all alkaloidal titrations, the men in another laboratory prefer the general use of iodeosin. Does the indiscriminate use of these indicators give concordant results and would the assay be considered as being made according to the U. S. P. if an indicator not specified in the particular assay were used in the titration?

Query No. 6. Color of end point.

In all the alkaloidal titrations, the U. S. P. specifies that the standard solution should be added until a certain color is obtained. Owing to differences in judging the end point and the absence of a definite color standard a considerable variation is to be expected.

Ought not the end point of an alkaloidal titration be determined by matching a certain color of a standard chart under definite conditions?

Query No. 7. Blank determinations.

To avoid the difficulty of judging the color of the end point and to provide a check on the solutions being used a blank determination is usually made by most analysts. Even this method is faulty where the alkaloidal residue still retains some color. Would it be advisable to specify that a blank test be made with every alkaloidal titration?

Query No. 8. Amount of solvent.

Most practical analysts who are regularly making alkaloidal assays are agreed that insufficient solvents are specified for extraction of alkaloids in many of the U. S. P. processes. For example, in the assay of Nux Vomica after oxidation of the Brucine the quantity of chloroform specified will not leave the supernatant liquid clear, nor will twice the specified quantity, but by repeated extractions with chloroform the supernatant liquid will become clear. Is an assay made in accordance with U. S. P. process, when excessive quantities are used? If additional quantities of solvents are allowable, should each extraction be made until no precipitate is obtained with Mayer's reagent?

Query No. 9. Identification of alkaloids.

In the determination of alkaloids from crude drugs the U. S. P. makes no provision for the identification of alkaloids extracted. Would it be advisable to insert identification tests for the alkaloids after they have been extracted and estimated?

Query No. 10. Physiological tests.

After the alkaloids have been extracted and estimated, would it be advisable to insert physiological tests and determine the minimum lethal dose and note the characteristic action?

Conclusion.

In presenting the above queries I realize that I am presenting problems that can only be settled by extensive experimental work. The main practical question is to decide how great these various factors probably are and whether the necessary co-operative work is to be undertaken.

ANALYTICAL DEPARTMENT, SMITH, KLINE & FRENCH CO.

SWEET SPIRIT OF NITRE, A SUGGESTION FOR A CHANGE IN
THE FORMULA.

LINWOOD A. BROWN.

Owing to the fact that a very large number of samples of Sweet Spirit Nitre collected by the drug inspector for the Kentucky Agricultural Experiment Station, were found to be badly deficient in Ethyl Nitrite, and the statement by the druggists that they are unable to keep it so that it will retain its strength, has prompted this department to make a study of the question, endeavoring to determine whether the trouble was due to the formula or to the conditions under which it was kept, or both.

The Ethyl Nitrite used in preparing the spirit used in the following experiments was prepared by the formula given in the United States Pharmacopoeia, and which gave a yield of 78.5 grams Ethyl Nitrite. Time consumed in process, two

hours and twenty minutes, the work being carried along with the usual laboratory work.

Experiments Nos. 1 and 2. Thinking perhaps the small amount of water present in U. S. P. strength alcohol might exert a hydrolizing effect upon the unstable Ethyl Nitrite, we prepared 440 grams of the spirit by diluting the Ethyl Nitrite with absolute alcohol (U. S. P.) and assaying by the U. S. P. method, using mercury, however, in place of the saturated salt solution in the nitrometer, and shaking the apparatus after the reaction was over until the solution became colorless.

By shaking the nitrometer until all of the liberated iodine has combined with the mercury, it seems to disengage the NO gas from solution more completely and allows quicker and more accurate readings.

The volume of gas was reduced to standard temperature and pressure of 25° C. and 760 m.m.

After assay, the above preparation was cooled and divided equally and placed in well ground glass stoppered, flint glass bottles, and labeled "Experiments 1 and 2," respectively.

Experiment 1 was placed in ice chest and kept at a temperature of 9-10° C., as were the other experiments, which were subjected to storage in ice chest.

Experiment 2 was placed on shelf in laboratory in rather bright, diffused light and exposed to a temperature of from 20 to 30° C.

Experiments Nos. 3, 4, 5, 6, 7 and 8. The material for these experiments was prepared by dissolving a portion of the Ethyl Nitrite in ordinary U. S. P. alcohol (containing 93.82% ab. alc. by vol.) assayed as before and divided as follows:

Experiment 3 was kept in ice chest at 9-10° C., in glass stoppered, flint glass bottles.

Experiment 4, kept in clear, glass stoppered, flint glass bottles on shelf in laboratory alongside of Experiment 2.

Experiment 5, kept in one-ounce, amber-colored bottles, stoppered with corks soaked in hot paraffin, and then the necks of the bottles dipped in paraffin; bottles kept in ice chest.

Experiment 6, same as Experiment 5, but kept on shelf in laboratory, temperature 20-30° C.

Experiment 7, same as Experiment 5, except it contained 0.25 grams powdered potassium bicarbonate in each bottle, kept in ice chest.

Experiment 8, same as Experiment 7, kept on shelf in laboratory, at temperature of 20-30° C.

Experiment 9. This sample was prepared with 90% alcohol. Sample kept in ground glass stoppered bottle in ice chest.

Experiment 10. Same as Experiment 9, but kept on shelf in laboratory in clear, glass stoppered bottle, in strongly diffused sunlight, temperature 20 to 30° C.

Experiment 11. This sample was prepared with 80% alcohol, kept in glass stoppered bottle, in ice chest.

Experiment 12. Same as Experiment 11, but kept on shelf in laboratory at 20-30° C., in strongly diffused light.

The following table shows the results of our analyses, and we believe show it is possible to make and keep Spirit Ethyl Nitrite of good quality:

Sample Assayed	Mch. 29, '11	Apr. 12	Apr. 26	May 10	May 24	June 7	June 21
Experiment No. 1....	4.36%	4.21%	4.11%	4.10%	4.02%	4.05%	4.01%
Experiment No. 2....	4.36	4.10	3.98	4.00	3.77	3.60	3.49
Experiment No. 3....	4.46	4.28	4.22	4.14	4.03	3.83	3.61
Experiment No. 4....	4.46	4.21	3.88	3.88	3.69	3.63	3.50
Experiment No. 5....	4.46	3.96	3.82	3.76	3.67	3.96*	3.91
Experiment No. 6....	4.46	4.05	3.93	3.77	3.55	3.89*	3.67
Experiment No. 7....	4.46	4.22	4.02	4.03	3.80	4.13*	4.09
Experiment No. 8....	4.46	4.24	4.01	3.81	3.65	4.08*	4.02
Experiment No. 9....	4.46	4.15	4.09	4.09	3.98	3.97	3.81
Experiment No. 10....	4.46	4.02	2.51	2.27	2.12	1.88	1.37
Experiment No. 11....	4.35	4.14	4.07	4.00	3.93	3.79	3.50
Experiment No. 12....	4.35	3.95	3.53	3.28	2.90	1.93	1.17

Conclusion. The deterioration of Spirit Ethyl Nitrite appears to be due to a number of contributing causes, chief among which are: (1) Hydrolysis of Ethyl Nitrite by the water contained in the alcohol used. (2) This change appears to be accelerated by the acid produced during the change. (3) Loss of Ethyl Nitrite by volitilization. (4) Effect of actinic rays of light on the Ethyl Nitrite.

Therefore, in the author's opinion, in order to produce the best and most efficient preparation it is necessary to use absolute alcohol U. S. P., in place of that now in use; to keep the product at a temperature not greater than 10° C. (50° F.) and to keep the product in as small a container as possible, better in the size package called for by the trade, and to protect it from the light by use of amber-colored bottles.

DISCUSSION.

Philip Asher stated that his experience had lead him to believe that the disturbing factor was the slight acidity of the alcohol employed. He had been able to overcome the difficulty by neutralizing the acidity with potassium bicarbonate, and had obtained a spirit of full Ethyl Nitrite content that kept fairly well.

COMBRETUM SUNDAICUM.

I. V. STANLEY STANISLAUS, PHAR. D., PH. D., AND HORATIO C. WOOD, JR., M. D.

Combretum sundaicum Miquel, according to Holmes (P. J., 1907, p. 77), is a shrub indigenous to Sumatra and belonging to the family *Combretaceae*; its leaves are said to have been in use for a long time by the Chinese for curing the opium smoking habit.

An infusion made from the previously roasted stalks and leaves and drunk, is said to quickly give rise to an aversion to opium smoking and hence originates the name of "anti-opium plant."

Upon analysis only tannins and gums have been found, and hence the difficulty to understand the action of the drug. A thought was advanced in Merck's

* Original one-ounce bottle.

Manual of Materia Medica (supplement to, 1905, page 36) that the drug may contain caffein, a substance well known to be an antidote in acute opium poisoning.

Harrison (P. J., 1908, p. 52) has investigated the chemical character of *Combretum*, chiefly directing his attention to the detection of either an alkaloid or a glucosid, but failed in this respect. He found a resin to which the action of the drug could be attributed.

Through the courtesy of Mr. Henry C. Blair of Philadelphia, we were provided with authentic specimens of the drug, which was investigated by us both chemically and clinically.

In making the proximate analysis the well known scheme of H. B. Parsons as found in Lyons' *Pharmaceutical Assaying* (1886) was followed. It, in the opinion of the writer, would be an unnecessary procedure to recapitulate herein the scheme, so only the important findings are presented.

Five grams of *Combretum* in No. 80 powder taken for analysis:

Moisture	3.300%	
Ash	7.500%	
Residue from benzolic extraction.....	10.600%	
Residue treated with water and evaporated with one drop of hydrochloric acid to dryness at 100 C.; then heated to 110 C. weighed.....		0.225 Gm.
Residue from benzolic extraction treated with 30 Cc. warm water, filtered and divided into aliquot portions A and B.		
Solution A evaporated to dryness gave a residue.		0.008 Gm.
This residue ignited gave ash.....		0.002 Gm.
Solution B was tested for alkaloid with Mayer's, Wagner's and Scheibler's reagents.....		None found
Solution B—another portion was tested for glucose by Fehling's test.....		None found
Solution B was tested for organic acids: Found gallic acid		A trace
Benzolic solution treated with alcohol (0.848) several times, then filtered and evaporated, gave a residue		0.155 Gm.
An alcohol solution was tested for camphors....		None found
An alcohol solution was tested for resins with acidified water, the residue dried and weighed		0.013 Gm.
Chlorophyll was found.....		Abundant
Calvert test gave no indication of the presence of fixed oils.		
The final residue proved to be a caoutchouc-like substance, dark green in color, and soluble in 4.9 parts of benzol, freely soluble in chloroform, sparingly in ether, but insoluble in either water or alcohol.		
The marc from the first extraction was hot—repercolated with alcohol (0.848) for twelve hours—the extract evaporated. The residue dried and weighed.....		0.55 Gm.
An alcoholic solution precipitated with ammoniacal zinc acetate solution gave partly tannin, which dried at 120° C. weighed.....		0.235 Gm.

The precipitate ignited gave ash.....		0.195 Gm.
Difference in tannin weight.....		0.040 Gm., or
found tannin	1.000%	
Basic lead acetate precipitate—treated in the same fashion as the previous gave tannin.....		0.012 Gm.
Total tannin found.....	1.002%	
The filtrate precipitated with sulphuric acid and tested with Fehling solution for glucose.....		None found
The marc from the alcoholic extraction, dried at 100 C. was macerated 10 hours with 100 Cc. of water and filtered. The filtrate was divided in three portions, A, B and C.		
Portion A—evaporated, dried at 110° C. weighed.		0.038 Gm.
Residue ignited gave ash.....		0.0013 Gm.
Portion B—tested with iodine solution gave indica- tion of the presence of erythro-dextrin.		
Portion C—tested with ammonium oxalate gave no calcium test.		
When tested with dilute hydrochloric acid a gelatinous precipitate consisting of pectic acid was obtained.		
The marc from the water extraction washed with alcohol and dried at 100° C. weighed....		3.492 Gm.
This was treated with 100 Cc's of water, contain- ing 5 Cc. of sulphuric acid—heated until a drop of it gave no coloration with iodine. No color whatever was obtained. The specific gravity of the liquid was determined and was found to be.....		1.0011 Gm.
The excess over 1.000 or .0011 divided by eight equals	0.00011% of starch found	
From the above we deduce that the probable prin- ciples which are active may be the peculiar tannin, the resin and the caoutchouc-like sub- stance found in the drug, and which latter in the process of roasting may become so modi- fied and rearranged as to give rise to some new principle to which the so highly lauded effects as noticed by the Chinese may be as- cribed.		

Credit is herein given Mr. Robert P. Fischelis, Ph. G., for valuable assistance rendered during this investigation.—I. V. S. S.

REPORT OF A CASE OF OPIUM HABIT TREATED WITH COMBRETUM SUNDIACUM.

This plant is a woody climber, belonging to the family of Combretaceae and is found abundantly in the Malay Peninsula, especially in Selangor. A botanical description of it is not necessary as it is a recognized plant in all of the standard botanical works dealing with this part of the world. The story of its introduction into Chinese medicine is given by Wray, which is one of those highly characteristic improbable romances which have been associated especially with nostrums and Chinese remedies. The story goes, that a party of Chinese woodcutters having run out of tea prepared an infusion from this plant as a substitute for their national drink, and in some way, accidentally, opium got mixed with it, and

after taking this mixture for a week they found that their craving for opium had entirely disappeared.

The method of using it in China is stated by Wray to be as follows: The twigs and leaves of the plant are chopped up into pieces of about an inch in length and dried for several days and then the woody portions of the twigs are separated from the leaves by a winnowing process and set aside in a separate sack. The leaves are then thoroughly roasted and mixed again with the sticks. From this mixture a decoction is prepared by boiling eight to ten ounces of the plant in four gallons of water for several hours. This liquid is then strained through a cloth and used before time for decomposition. The opium habitue takes his ordinary daily dose of opium, mixes it with a quart of the decoction and from this bottle he takes at the intervals at which he was accustomed to smoke, a dose of three ounces of this mixture and fills up the bottle with pure decoction of *combretum*. This method of preparation and use differs a little in details from that which we have seen elsewhere described but in principle all of these methods of employment are that long established practice of gradual reduction in the dose of the narcotic. Even the method of adding an inert substitute for replacing the daily dose of opium taken from a stock bottle is a well recognized method of reducing the dose. I myself have had occasion in treating a patient who had acquired the paregoric habit, to have a preparation made exactly according to the formula of the U. S. Pharmacopeia for camphorated tincture of opium, omitting only the opium and substituting this preparation in the same method as recommended for *combretum*.

The plant appears to have been used to a considerable extent in the Malay Peninsula and China for the relief of the opium habit. The statements which are made concerning the results from this treatment are, however, vague in the extreme as to the results. I have not yet been able to find a single detailed report of a case treated by the method although there are several articles in which the drug was claimed to have been used with good results. The only trial of the remedy which has been published in this country so far as I know is in the paper of Heffner, read before the Pennsylvania Pharmaceutical Association in 1910. This paper comes the nearest to describing the effects in an actual case of any communication I have seen, although there is no detailed report. The case mentioned after ten weeks' treatment was entirely cured of the opium habit. Heffner also states that others have obtained favorable results from the plant but gives no reference to the literature. It has seemed to me, therefore, worth while to briefly describe the effects which I have noted in a marked case of opium habit.

L. R., aged 37. Some four or five years ago acquired the opium habit through the use of Bull's Cough Syrup, later using paregoric and laudanum. After realizing that he had acquired the opium habit, he took the Contrell Opium Cure, for which he paid \$5.00 a week, and after a month's treatment learned that the cure contained morphine. Later he used the alkaloid and states that he has taken as high as forty grains a day of morphine, in from three to five grain doses. About one and one-half years ago he was treated at a hospital and for two weeks after leaving did not take any opium but was now using between three and four ounces of laudanum a day. He was admitted to the Medico-Chirurgical Hospital in April, 1911. An eight-ounce bottle was filled with a mixture of equal parts of tincture of opium and an infusion of *combretum* (prepared by Prof. Stanislaus).

Of this mixture he was given one tablespoonful every two hours and for each dose that was taken out there was poured in an equal quantity of the infusion of combretum. During the first week, although he was not sleeping well and was distinctly nervous, the symptoms were in no way violent. At the end of this time, however, he became extremely restless and suffered intensely with insomnia, although there was no diarrhoea. The second week of his stay in the hospital was no whit less painful to him than to the opium habitué under ordinary treatment. As the combretum did not seem to exercise any quieting action whatsoever it was stopped and the case treated along conventional lines. He remained in the hospital about six weeks and so far has not returned to the drug.

While from this single case one is, of course, not justified in drawing definite conclusions, it does not seem to me probable that the plant exercises any peculiar effect upon the central nervous system which would explain its action in opium habit. It seems perfectly plausible to ascribe its virtues to the large percentage of tannic acid which it contains. When the infusion is mixed with the opium there is a heavy precipitate consisting, presumably, largely of the tannates of the opium alkaloids. As we administered it, the bottle was always well shaken so that these were also taken.

The effect of the tannic acid will be two-fold. In the first place one of the most troublesome symptoms of the withdrawal of the opium is diarrhoea, which, of course, the tannin would tend to restrain and as the dose of tannin in the method of administration recommended is proportionate to the amount of opium withdrawn, the need of the intestines is gradually met as it occurs. The second factor which has occurred to me, is that the tannate of morphine which is formed, being but very sparingly soluble is absorbed from the intestinal tract very slowly so that instead of the abrupt pleasurable effects of the opium the drug is so slowly absorbed that the patient is continually under a comparatively mild degree of narcotic effect. This, while not sufficient to give rise to the pleasurable sensations is sufficient to prevent the violent disturbances of the nervous system so that with a little determination the patient is able to endure for a time without the drug. As far as I can determine it has been the experience of others that the drug is more useful in reducing the dose than in producing complete cures.

I believe that combretum sundiacum is of service in the treatment of the opium habit, but whether it is of any more service than tannic acid or the other vegetable astringents, I am not prepared at present to say.—H. C. W., Jr.

THE RED TAPE OF DUTY.

"The boy who 'stood on the burning deck,' and who committed suicide on a technical point of obedience, has been held up to the school children of this century as a model of faithfulness to duty. The boy was the victim of a blind adherence to the red tape of duty. He was placing the whole responsibility for his acts on some one outside himself. He was helplessly waiting for instruction in the hour of emergency when he should have acted for himself. His act was an empty sacrifice. It was a useless throwing away of human life. It did no good to the father, to the boy, to the ship, or to the nation."—*William George Jordan.*

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

THE EDUCATIONAL WORK OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION.

M. I. WILBERT.

The object of this paper is to direct the attention of American pharmacists to the work of the Council on Pharmacy and Chemistry of the American Medical Association and to discuss more particularly the educational work that has been done in the past, and the possible elaboration of this same line of work in the future.

The origin and object of the Council has been well outlined by Torald Sollman in a series of articles entitled, "The Broader Aims of the Council on Pharmacy and Chemistry of the American Medical Association," published in the *Journal of the American Medical Association*, and since then reprinted in the form of a pamphlet for ready reference.

The origin of the Council is also recorded in the *Proceedings of the American Pharmaceutical Association for 1905* (Vol. 53, pp. 67-69), so that for the time being it will suffice to state that the Council was organized in February, 1905, for the direct purpose of investigating the then numerous and involved problems in connection with the advertising and use of proprietary remedies. As originally constituted, the Council consisted of three sub-committees—Pharmacy, Chemistry and Pharmacology—with the late C. S. N. Hallberg as secretary and "main-spring."

The functions of the Council were primarily judicial, and its first work was to assist in ridding the pages of the *Journal of the American Medical Association* of the advertisements of secret or semi-secret proprietary remedies.

To appreciate the really far-reaching effects of this work, more particularly the courage required to carry it on, one must compare a number of the *Journal* published five or six years ago with a corresponding number of today, and note the direct money loss in the way of "gilt edge" advertising that was involved.

At that time wiseacres on all sides predicted that the undertaking was rank folly, that the *Journal of the A. M. A.* could not exist without the patronage of proprietary medicine manufacturers, and that the life of the Council would necessarily be a short one.

Fortunately, these prophets had not taken into consideration the fact that the average American, and more particularly the average American physician, is willing to, and does occasionally, do some thinking for himself, and usually follows his thinking up with a practical adaptation of the course that appeals to him.

While the members of the Council, individually and collectively, were maligned and abused in some quarters for being "hare-brained" destructionists, their work was appreciated and praised by the better element in American medicine, and in a surprisingly short time physicians all over the country were willing to have the Council adopt much more stringent rules than the originators of the same had dared to hope for.

At a meeting of the Council held in 1908, the original ten rules were amended so as to provide for a more or less comprehensive investigation of the therapeutic claims made in connection with patented and proprietary remedies. A fourth sub-committee, on therapeutics, was organized, and the advertising pages of the Journal were given a second overhauling, resulting, as before, in a considerable loss of revenue from advertisers of a pecuniarily reliable type, but resulting also in a corresponding increase of respectability and an augmentation in the number of subscribers, showing that physicians at least are willing to learn and are capable of appreciating sacrifices for an evidently just cause.

No inconsiderable amount of the credit for the final success of the Council is due to the activity of the chemical laboratory of the American Medical Association under the supervision of W. A. Puckner, the present secretary of the Council.

This laboratory was organized early in 1906, and the annual reports of the work done, while largely made up of reprints of articles published in the Journal, are nevertheless interesting in that they present for ready reference the unusual, and in many respects original, chemical data involved in connection with the work of the Council.

These "Reports," with the "Reports of the Council on Pharmacy and Chemistry of the American Medical Association," now also reprinted annually, the "Propaganda for Reform in Proprietary Medicines," and the current number of "New and Non-Official Remedies," contain a rather complete reflection of the various activities of the Council that are more fully recorded in the 8,000 or more pages of the weekly "Bulletins" circulated up to the present time.

As the total of these reports comprises upwards of 1,400 printed pages, it would be futile to endeavor to reflect the various accomplishments of the Council in the course of a short paper.

It may be permissible, however, to recall to your attention the work done in exposing the nature of the acetanilide mixtures, the discussion on the misuse of digestive ferments and liquid foods, and last, but by no means least, the exposition of the misleading claims that were made in connection with Arhovin, Somnos, Isopral, Chinosol, Probilin, Collargol, and a host of other proprietary preparations, now living or dead, which were being marketed by the manufacturers with a view of securing prompt returns on money invested in printer's ink.

Since 1908, the Council on Pharmacy and Chemistry has been increasingly active in a systematic investigation of the various problems that are involved in present-day therapeutic practices and has busied itself with the development of plans for the systematic upbuilding of a rational materia medica by means of which it should be possible to eliminate at once and for always both therapeutic nihilism as well as therapeutic fetishism, and to place therapy on a firm foundation of well established truths.

From the very origin of the Council, the members have appreciated the need

for conducting an educational campaign in favor of recognized open formula or official medicaments.

The earliest efforts in this direction were undertaken by individual members of the Council through the publications of the Journal office.

Beginning in 1905, there appeared in the Journal of the American Medical Association a series of articles entitled, "The Pharmacopoeia and the Physician." These articles were designed to call attention to some of the more reliable, official medicaments and to point out the advantages, to both physician and patient, that might accrue from the rational use of U. S. P. and N. F. remedies.

The articles were subsequently published in book form, and have been since reprinted on two different occasions.

Early in 1906, largely through the initiative and instrumentality of the late C. S. N. Hallberg, the American Medical Association published an epitome of the U. S. P. and N. F. under the title, "Manual of the U. S. Pharmacopoeia and the National Formulary."

This latter publication proved to be the immediate incentive for the now widespread U. S. P. and N. F. propaganda that has done so much to direct the attention of retail druggists to the possibility of improving their own standing in the community by developing the professional side of their calling.

Following the publication of these books, an effort was made, through a special committee, to induce teachers of materia medica to devote much, if not all, of their time to the discussion of well established official medicaments, so as to give to future generations of medical men a thorough grounding in the possible uses and limitations of the more important articles in our materia medica.

While this work has not been entirely futile, the practical results have not been commensurate with the time and money that have been expended. The reasons for this apparent failure are directly traceable to the redundancy of the present official standards for drugs and medicinal preparations and the ever threatening possibility of having one of the members of the state board of medical examiners propound a question regarding the possible uses and action of some little known or practically obsolete drug.

This latter obstacle is now in a fair way of being overcome, and with the co-operation of the several state boards and the teachers of materia medica and therapeutics, the Council has reasonable hopes of being able to issue a list of reliable medicaments to which systematic instruction in materia medica can largely be confined.

This then, leads up to the most recent and perhaps the most important piece of investigative work as yet undertaken by the Council; a systematic review and study of the moot points in drug therapy. While it is true that here the individual problems are legion, it is, nevertheless, expected that many of them can be satisfactorily studied in a reasonably short period of time, and that this work once thoroughly established, will be taken up and continued by individual investigators and by other medical organizations.

It is not expected to revolutionize the materia medica of the country in any given period of time, but it is expected that a systematic and conscientious investigation of the truth or falsity of certain statements made in connection with more or less well established remedies will serve to put the practice of drug

therapy on a firm foundation, against which the "isms" and "pathies" of the future will rail in vain.

The program, as outlined, is broad enough for all who are interested in the development of scientific medicine to participate in, and it is to be sincerely hoped that the members of the American Pharmaceutical Association, both individually as well as collectively, will lend their aid in clearing up some of the many perplexing questions in connection with the origin, composition and uses of well established drugs.

THE REAL EDUCATIONAL NEEDS OF THE PHARMACIST.

HENRY P. HYNSON, PHAR. D.

These conclusions are arrived at from a point of view secured by standing upon a mass of my own needs and deficiencies, that is heightened and made more secure by the deficiencies of many proprietors, with whom I have come in contact, and, more particularly, by the glaring defects of clerks I have employed.

It must be clearly understood that I am not presuming to criticise the syllabus of studies outlined by the able national committee which has had that matter in charge; indeed, I will be glad if I am able to assist that body of earnest workers in the good work they are doing.

It would seem, that a person knowing and knowing well, all the subjects that committee has prepared for a college curriculum, might be a fairly good pharmacist. Yet, I believe there will be many who will make, when the course of studies proposed is put into operation, a uniform rating of over ninety per centum, and then fail, sadly fail, to meet the requirements of the retail pharmacist of today, even in strictly pharmaceutical pursuits.

I will confess that my standard of success is quite different from that of many others who may be very properly rated as both sane and sound. The mere fact that a pharmacist wears large diamonds in his shiny, celluloid shirt front, or rides in an orange, red and green colored automobile, or cleaves placid waters with a sputtering motor boat, and pays for them all, while still having "money to burn," does not, in my opinion, prove that he is or has been a successful pharmacist. I am quite ready to grant that money making and money saving constitute one and a very essential element of success. Any one who, barring unusual misfortune, fails to do this can not be styled successful. But, beside providing for himself a comfortable living and a few ducats for a "rainy day," the really successful pharmacist must have made himself truly useful to the community in which he is located and, by all means, he must have won respect for the vocation in which he has served; glory and honor must have been added to his profession because of *his* accomplishments and because of *his* honorable practice. Only such practitioners will be remembered; only such practitioners will leave the world of pharmacy and, incidentally, the world at large, better because they lived, thus evidencing the only kind of success that is really worth seeking.

Now, to win such satisfactory results, one must, of all things, have an

abundance of *common sense*. That means, I believe, that he should possess that quality of mind which will prevent him from making a fool of himself when solving problems, the exact counterpart of which he has not solved before or which have not been solved in his presence. Some call it logic, some call it reason, but it is neither, because satisfactory results may not follow the use of these qualities. It would be better to style it self-reliance or dependence upon natural "wit."

I do not believe it can be accurately concluded that this "common sense" is ever inherent; I am strongly of the belief that it is, after all, acquired through experience. Here, the important matter for consideration is to find out how it is that some acquire so much of this most valuable knowledge quite early, even with their first impression. If it is environment or parental excellence, then, for the love of coming generations, let us try to find what and how it is, that very many more may acquire it.

I do not want to be hazy about this; I trust to be understood and as saying that when this quality of mind is found lacking in a student or apprentice, in some way or another, it must be supplied to him and, if he can not acquire it by some process of education, then he must be forced out of Pharmacy's domain by our colleges, or if not by them, by our boards. Judging from the output of a half dozen colleges, I am inclined to think the schools have not been able to eliminate this fool-class of would-be pharmacists. To do this, however, is fundamental, and we must not be satisfied; we, who try to be honorable and true, must not be satisfied until we "nip off" these entirely impossible buds from the pharmaceutical bush, quite early, even before they begin to open. But to do this effectively, we must establish a just and thorough test for "buds". Anxiously, I wonder if it will ever be possible to use such tests in unendowed schools?

Another peculiar something a pharmacist needs to be taught is to be dignified; he must acquire true dignity. By this, I mean he must be intelligent enough, careful enough and honest enough to know himself and, thus knowing himself, he must be so well equipped as to win, first, his own respect and, secondly, the respect of those who really and truly know him.

True pharmaceutical dignity, then, is the behavior that is inspired by reasonable self-respect and by the generous respect of those with whom we come in contact in the practice of our profession. Refinement and dignity are much the same or are, at least, inseparable. Both are the result of self-examination and self-instruction, acquired and stimulated by comparing ones self with idealistic standards of excellence; when he should be more accurate in his findings and more severe in his requirements for himself than he is in his estimation of others.

We pharmacists need, probably more than anything else, to be cultured; broadly cultured. I understand culture and training to mean much the same. I do not believe either consists entirely in possessing much knowledge of the classics, of higher mathematics or of many modern languages. All these contribute to culture, but I question the quality of any one's culture when he is not able to make himself easy in polite society or able to successfully meet the requirements of higher social life. The appropriately cultured person is always conventional, and it is a sad spectacle one makes who is conspicuous because of oddities that are his.

Standards for culture may be selected from those persons in a community who enjoy universal respect and from those who are prominent because of real worth and because they really merit the position they occupy. It is quite easy to separate the true from the false, in any community, and thus find helpful standards.

Yet, withal, pharmacists, like all men who really bear the image of the creator, need to be or to become truly romantic; that is, able and willing to do even the unusual, if that is necessary for truth's sake. Romance never clashes with the conventional; it is often the quality that enables us to be conventional at the sacrifice of pride, ambition or some such less creditable attribute of our nature. We are romantic when we sacrifice possible gain, gain that others do not hesitate to acquire, because we will not ignore the higher ideals of our vocation, and it is the true and beautifully romantic spirit that enables up to resist temptations, to do the right and boldly stand for the nobler and more useful forms of practice; certainly that form which obeys civil law and follows the leadings of the more delicate precepts of personal righteousness.

The pharmacist needs to be taught and to learn much more regarding true art; he must, indeed, become more artistic. Probably, such knowledge is really a part of general culture; certainly, one may be neither polite nor dignified without a fundamental knowledge of art. It is this information that will make him able to appreciate real values and it is this same knowledge that will lead him to employ durable, appropriate and useful fixtures and appointments in the prosecution of his business. Nothing, it is believed, conduces so largely to the doing of better things, in better ways, than does this knowledge of true art. It inspires its possessor with the desire to present the higher forms, those that more nearly approach the ideal. The real artistic spirit will guard one against committing vulgarities which entirely counteract the helpful influence of the highest technical acquirements.

I have not intended to convey the thought that less technical knowledge is required. I would, however, suggest this, in case it be found necessary to make place for this more general teaching.

I am confident, because of what I have heard so many times, that it will be said these broader teachings are no part of a technical training. Let me advise that I have not attempted to discuss the technical training of the pharmacist at all, but have tried to show what I believe to be his greatest educational needs, no matter where they are to be supplied, and I am trying to be extremely practical by calling attention to the fact that there is, annually, going to the schools of pharmacy of this country, as has certainly been the case since 1876, a class of young men who need and have needed the very instruction that I have suggested: needed for the better serving of the public, for the greater advancement of pharmacy and for general betterment of themselves. Do not overlook the fact that it is this kind of grist that has been coming and continues to come to the pharmaceutical college mill. I believe I may truly say it is the very same kind that will continue to come for years and years. Therefore, I believe it to be our duty, a part of our work, to so modify our mills that they will clean this grist and prepare it for the final finer grinding. Let us take it as we find it, as it comes to us and, during a preliminary year, blow out all the chaff, blow it forever

away, while cleaning and polishing the sound grain. As it is, we are mixing chaff and crudities and deficiencies and misfortunes all together with results that are, by no means, satisfactory to the three factors most interested: the public, the employer and the employe. Secondary schools may help and colleges may more largely assist, but while these remain such uncertain quantities as they now, most certainly, are, a practical preparatory course in the schools of pharmacy is really the only thing that will supply, out of the material at hand, the quality and quantity of pharmacists required to meet present day demands.

Common sense, dignity, culture, are the possessions; romantic, artistic are the qualities. Is there a successful practical pharmacist within the sound of my voice, or anywhere else, who will not admit, when he fully understands what these mean, that they are more essential to the really helpful assistant than is all the strictly technical training he may secure at the best of our pharmaceutical schools? These possessions and qualities make up the advantages that it has been thought result from "drug store experience". It is very true that, when this so-called experience gives such things, it is, indeed, most advantageous. But what is the situation when it does *not* give these, but instills everything that is contrary, what then?

Let us see, just for a moment, what these possessions and these qualities mean. Common sense, I believe, means no more than the ability to properly attack a problem. When a clerk "goes at a thing right," we know how valuable he is; how safe he is, and how much he will accomplish. We all know that this ability does not come from technical training, necessarily, although technical training, if properly directed, will greatly assist in its development.

Dignity and culture make the successful salesman or merchant; they claim respect and inspire confidence. These, assisted by artistic temperament and attainments, make an invincible combination that will be more effective in the proprietor than it is in the assistant, however powerful it may there appear. Carriage, manner, conversation, dress, store, stock, utensils, labels, advertisements, everything material that is worth while, should come under the beneficent control of these: dignity, culture, art.

It is, however, the romantic spirit, true heroism, that makes up the character and shapes the policies of the business and the business man. Nothing less and nothing different will prove effective. Neither fear of the law or lust for gain will be powerful enough. Romance, alone, will bring about good results; love it is, after all, love for the real, the true and the good.

And so, my dear friends, with the material at hand, we must try a year of probation; a year of tutoring in common things, that are really higher things; a year in making up deficiencies and in smoothing rough surfaces; a year in refining, which means a year of much elimination, of *helpful* elimination. Am I understood? Three years? Yes, by all means, but be very careful that there is no more of the technical than there is now. One year of fundamental preparation; one year devoted to making and finishing *men*; two years devoted to making and finishing practical, useful pharmacists.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

A NEW METHOD OF MAKING TINCTURE OF OPIUM.

WILLIAM R. WHITE.

Tincture of opium, which is undoubtedly the most important galenical preparation in the Pharmacopoeia, has been the subject of much study and investigation. Many methods have been devised for its manufacture, the majority of which have involved both the principle of maceration and percolation. The chief feature of this method, however, is that it is based entirely on the principle of maceration. There are three points in which the writer claims it has an advantage over the U. S. P. method:

First. It entirely exhausts the opium.

Second. It avoids the slow process of percolation.

Third. It recovers a part of the menstruum left in the marc.

The process is as follows:

Take 100 grams of U. S. P. granulated opium and add to it 500 c. c. of boiling water; macerate for 48 hours with occasional stirring; add 500 c. c. of alcohol, macerate again for 48 hours with occasional agitation, allow the drug to precipitate; decant the clear supernatant liquid, place the residue on a filter and allow the menstruum to filter until it ceases to drop, then place the filter and contents in a tincture press and express as much as possible; add the filtrate to that portion decanted, measure the whole, noting the difference between that obtained and the 1000 c. c. first used. The marc is then exhausted with hot water by adding about 80 c. c. at a time, allowing it to macerate a few hours, then expressing it. This operation is repeated until the opium is exhausted, which can be ascertained by testing the filtrate with the general alkaloidal reagents. The combined extractions are then evaporated on a water bath until the volume is equal to one-half the difference noted above. This is then mixed with an equal volume of alcohol and added to the measured filtrates. The whole tincture is then filtered, and is ready for use.

If a press is not available, the same results can be obtained in the exhaustion of the drug with the hot water by repeatedly macerating and filtering instead of expressing, except that all of the alcohol left in the marc will be lost by the subsequent evaporation.

About 400 c. c. of hot water has usually been found sufficient to complete the exhaustion. Some samples of opium, however, seem harder than others to

exhaust. The principal objection to this method is the time that is required in evaporation. This is to a large extent under the control of the operator and can be hastened when desired by using a greater number of evaporating dishes or by evaporating in vacuo.

There seems to be no longer any dispute over the question whether water will exhaust opium of its morphine, since the U. S. P. has ruled upon this fact in its directions for making the deodorized tincture opium, also in the extraction of the opium in the assay process.

In 1902, Dr. E. A. Ruddiman published an article in the *Bulletin of Pharmacy*, vol. xvi., p. 368, in which he claimed that the opium was not entirely exhausted by the dilute alcohol used in the 1890 U. S. P. process.

In 1906, H. A. B. Dunning, in a paper read before the A. Ph. A., stated that it had been proved by assay that neither the old nor the new U. S. P. method for making tincture opium exhausts the opium completely. After repeatedly assaying the tincture made by the above method, the writer can state that his results have proved conclusively that this method does completely exhaust the opium of its morphine.

The saving in alcohol by using this method is quite an item in the cost of the tincture, especially where large quantities are made at a time.

In conclusion, the writer will state that this method has been in constant use by one firm for fifteen years with the most favorable results, and it is his firm belief that the practicability of this method will appeal especially to those pharmacists who are not prepared to assay their finished tincture.

NATIONAL FORMULARY AND U. S. P. WORK—WHAT HAVE YOU DONE WITH IT?

WM. A. HALL.

The U. S. P. and National Formulary work—What have you done with it? The thought that was in my mind a year ago when I consented to prepare a paper was a little history of what has been done in Detroit along that line, thinking it might be of help to organizations in other places, and that they might profit by what fruit we had gleaned out of it.

We first considered this work some six years ago. I think 1905 was the inception of it. We started in with the meeting that the Wayne County Medical Association had on the "U. S. Pharmacopoeia" which had just come out, and at that time we read a paper before the physicians and quite a number of the pharmacists of the city that were invited to be present on "What Physicians Are Prescribing." We were met with open arms by the physicians and invited to come again, and the thought was in each one's mind, both pharmacist's and physician's, that the idea was a happy one of a joint meeting. A committee was appointed by our local Pharmacists' Association, the Detroit Retail Druggists' Association, and secured the following year Prof. Schlotterbeck, who presented "Synthetics" for consid-

eration. Every meeting we have had has been one of constantly increasing interest on the part of both pharmacists and physicians. The physicians have been entirely willing to meet us half way and bridge over the chasm, that is wont to be assumed as existing between the two professions, and placed many orders for copies of the U. S. Pharmacopoeia and National Formulary.

Next year we took up the question of the U. S. P. and N. F. preparations. We had our committee prepare six or eight samples of a dozen or fifteen preparations so that we had quite an array of samples on the table for the inspection of the physicians at the time of the meeting. The physicians discussed and commented freely on the very favorable appearance of the preparations. That did us a great deal of good, not only in the way of having these preparations prescribed, but it gave the physicians an idea of working away from the proprietary remedies, along lines of legitimate work, along the lines of the U. S. P. and N. F. preparations—not that other preparations of merit should not be prescribed—because they are and will be, but that the work should be along *ethical* lines—it must be carried along the lines which are advocated by the American Pharmaceutical Association, the N. A. R. D. and by the American Medical Association. The N. A. R. D. took this matter up, as you have read in “Notes,” and then later evolved the scheme of having a write up of the preparations sent to a list of physicians that the local druggists selected along with some literature on these special preparations. Then the druggist following up the plan should detail the physicians individually, have a talk with them, and thus help to create a kindly relationship even outside of the detail work.

We followed the presentation of these preparations next year with an address by Prof. Remington on the subject of “The Pharmacopoeia and the Physician.” The following year “Preparations” were again taken up and a chart prepared showing the increase or decrease of the sales of about ten of the leading proprietary medicines in the Detroit markets and those that would not be considered ethical preparations. Last year, we adopted after discussion resolutions instructing our delegates to the U. S. P. Revision Convention. This year we had Prof. Hynson who spoke to us on “The Formation and Workings of the Committee of Pharmacy and Chemistry of the American Medical Association,” as well as a clear presentation, with historical references, of the relations that should exist between the pharmacist and physician. All these meetings were helpful. They brought the ethical preparations before the physicians’ minds and it resulted not only in a general enlightenment but a decided increase on the part of the physician of that line of preparations, thus benefiting not only the physician but also the patient and the druggist.

I took pains to collect some data in reference to this work by inquiring of different representative pharmacists in the city. Taking two hundred prescriptions in the year 1907, when we made our first samples, and in 1910, when the canvass was made, it showed a very gratifying result. The figures were, in brief, as follows: In 1907, of the 200 prescriptions that were looked up, there were called for of the U. S. P. preparations and definite chemicals 372 ethical preparations. In 1910, after three years’ work, there was a call for 440, showing an increase of 18%. On these same 200 prescriptions there were 102 patents and proprietaries called for in 1907, while in 1910 only 52, a decrease of 50%. In

1907 the per cent of the special or proprietary articles to the total number of articles called for in these same 200 prescriptions, was 17.4%, while in 1910, the per cent had dropped to 11.8. What was done in Detroit can be duplicated in other places. But you will say that we have the physicians *prescribing* in Detroit. All right, but how do the pharmaceutical houses get *their* preparations called for by the physician? Why, by detail work, and we can do the same, and don't neglect the valuable team work or get-together meetings. Now it seems to me we can do something and in the end the physician will get into the habit of prescribing the preparations that we so desire to get before him. If he sees that the local druggist can and does make the preparations that he wants to use, will it not be a natural thing for him to designate these? These preparations may be made *for* you if you do not care to make them yourself, but the idea is to get better preparations, more ethical preparations in use by the physicians which will result in a betterment all around.

Briefly, these are the results which we have been able to attain. The many physicians assured different members of our organization of their thanks that we brought these things up before them, and I hope what has been our experience in good results may be your experience too.

THE MICROSCOPIC CRITIC.

"Most people study character as a proofreader pores over a great poem; his ears are dulled to the majesty and music of the lines, his eyes are darkened to the magic imagination of the genius of the author; that proofreader is busy watching for an inverted comma, a misspacing, or a wrong-font letter. He has an eye trained for the imperfections, the weaknesses. Men who pride themselves on being shrewd in discovering the weak points, the vanity, dishonesty, immorality, intrigue and pettiness of others think they understand character. They know only part of character—they know only the depths to which some men may sink; they know not the heights to which some men may rise. An optimist is a man who has succeeded in associating with humanity for some time without becoming a cynic."—*William George Jordan*.

TRUE WORK NEVER FAILS.

"There is no honest and true work, carried along with constant and sincere purpose, that ever really fails. If it sometimes seem to be wasted effort, it will prove to us a new lesson of 'how' to walk; the secret of our failures will prove to us the inspiration of possible successes. Man living with the highest aims, ever as best he can, in continuous harmony with them, is a success, no matter what statistics of failure a near-sighted and half-blind world of critics and commentators may lay at his door."—*William George Jordan*.

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

PERSONALITY IN PHARMACY.

P. HENRY UTECH, PH. G.

So many different factors enter into the regime of the pharmacist's life that it is well nigh impossible to determine with any degree of accuracy just which forces play the more important role in the scheme of the successful man's career. Any attempt to analyze the problem must necessarily take into account such vital factors as talent, opportunity, heredity, environment, etc., and then by some process of elimination, or natural selection, determine, psychologically or otherwise, just how far or how much each of these factors have exercised their influence or power in shaping the destiny or career of the individual. To have made a success of life is the crowning ambition of man. To have achieved this unique distinction is the highest glory of mankind. According to one authority, the receipt is very simple. He says: "Success in life represents a rule in three. Multiply one's talent by one's opportunity and divide by circumstances and limitations, and you have the career." But leaving aside the psychology of the matter for others to discuss, let me call your attention at this time to still another all-important faculty and note briefly the importance of personality, i. e., how our personal attitude may be looked upon as a fundamental asset in conducting a successful business, be it pharmacy or otherwise. Let us pause, therefore, and inquire into the problem of ourselves and see how far the personal element has contributed to our personal welfare; and see at the same time, how many of our fellow workers place such little emphasis on personality as a factor in determining the relative position which they occupy in the world of business.

The world today—as in all the ages of the past—still gives the first prize to persons of high and noble character, all other attributes appear to have lesser consideration. One of the first prophets in history was cognizant of this condition when he gave the admonition that "a good name was rather to be chosen than great riches," but somehow, in our eagerness to achieve material success, maxims, wisdom and past traditions, are all scattered to the wind. It is unfortunate that more of our pharmacists are not possessed of higher ideals, for I know of no profession or vocation, in which the note of personality is so all important. To have acquired the respect, esteem and good will of a community, is the best asset a business man can command. Many a man has built up a future on reputation of his good name—it represents sterling worth in character, as in metal. Having acquired this reputation for honesty, integrity, uprightness in your dealings, the battle is almost won. Instinctively, people prefer to deal with a high rather

than a low type of individual; there is a feeling of security and satisfaction about it, an inherent sense of admiration for the person of clean character and high ideals. And in addition to all these advantages, the business community trusts and respects him, takes note of his work and ability, and when the opportunity calls for responsible men, his name appears first on the list.

Perhaps some of you may think this is not the time, nor place, to enter into a discussion of the question of morality, but the problem of honesty and integrity is so closely identified with the new standard of ethics in business, that it becomes our bounden duty, as pharmacists, to awaken from our lethargy, particularly at this time when the public scrutiny is upon us and when we have the endorsement and approval of the chief executive of our land, who has confidence in our ability and who is inciting us on to still higher ideals of social responsibility.

We are living today in an epoch-making period in the history of pharmacy. Our profession is undergoing a great crisis, and the public eye is upon us as never before. Two great national issues are before us demanding consideration, viz., the ethical standard of our products and, our attitude toward the liquor question, and the individual conscience—the personality of each and every pharmacist—will determine just what our measure of success in dealing with these problems shall be. Since the passage of the Pure Food and Drugs Act, the question of honesty and morality in articles of food and drugs is being freely and thoroughly discussed everywhere. For some unaccountable reason, many of our people inherently believed that most drugs were either poisonous or adulterated, but thanks to our good friend, Dr. Wiley, his able assistants, and the influence of the secular press, this opinion is being successfully controverted. Still it behooves us, as loyal workers in a common cause, to render all the assistance possible, each in his own community, to clear up any local prejudice or misapprehension that may exist, and thereby indirectly elevate the whole moral standard of our calling. The combined influence of such a concerted effort cannot fail to be productive of great and lasting benefit.

The other phase of public scrutiny to which we as a profession have lately been subjected, is the problem of liquor selling. And it is this particular feature of our business which is mainly responsible for bringing odium and disfavor upon us as a profession throughout the length and breadth of our land. While we have thousands of honorable, upright, conscientious men engaged in the business of pharmacy, the small percentage who indulge in this debasing and nefarious practice, naturally bring the entire profession into disrepute. Unfortunately, the world does not judge people, or a profession, by its highest types, but prefers to cast the lot of the whole with the few, who, taking advantage of their social position, indulge in all sorts of mercenary and illegitimate practices in their wild desire for material gain. But the battle is on, and we cannot afford to ignore it. We shall have to gird our loins, like the knights of old, and call into play all the latent forces at our command if we are to emerge victoriously from the impending crisis. Our personality must positively and definitely assert itself if we would preserve the integrity and good name of the profession which we have the honor to represent. Just what measures to employ in order to combat this growing menace in our midst, is not for me to suggest. Much abler minds than mine have been baffled in their endeavors to curtail this pernicious traffic. That

eminent scholar, Martineau, says somewhere, "Until somebody has a conscience nobody can feel a law," and I should be glad indeed to have this grand old association—which has already fought many a battle for the interests of legitimate pharmacy—endorse this sentiment and take some definite action in condemnation of this open and deliberate practice by the pharmacists of our land. This much we can do—this much, as an organization looking for the uplifting of pharmacy, we ought to do. Economists tell us that idealism for the few is not possible until we all attain perfection, and the object of this paper is simply to urge our fellow workers to advance a few steps toward the attainment of an ideal profession of pharmacy.

BEWARE OF SCHEMES THAT ARE QUESTIONABLE.

"Beware of the many alluring schemes that are being constantly cooked up by 'get-rich-quick' sharps and brought to you for adoption for the alleged purpose of increasing your business. They look very enticing if you fail to go deeply into their outcome, but are always very costly to the victim, knowledge of which comes too late to be of service. If you permit yourself to be cajoled into identifying your store with any one of these schemes you will discover shortly that your neighbor has gone you one better, and taken up with another, that will double discount your fake game—and so it will go on until business becomes thoroughly demoralized and you will all be hunting ways of escape.

"Our Association succeeded some years since in entirely eliminating all the nuisances of this character from the drug business, but it has taken hard work and eternal vigilance ever since to keep clear of them.

"We have been led into the writing of this article because calls have been coming from all directions concerning a lottery scheme that is being pushed under the auspices of one of the daily papers of the city, that is being urged for the purpose of increasing its own income by depleting yours. We are amazed that a reputable journal would take up with such a questionable method of advertising itself at the cost of its friends and patrons, whose business will be demoralized and unsettled by falling in with it.

"Do a little quiet thinking before the damage is done."—*Western Pa. Retail Druggist*.

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

THE EARLY HISTORY OF THE MASSACHUSETTS COLLEGE OF PHARMACY.

ERNEST C. MARSHALL, PH. G.

The organization of the Massachusetts College of Pharmacy was the result of the efforts of the Massachusetts Medical Society to improve the practice of pharmacy in the state during the early part of the last century.

The records of the Medical Society from 1821 to 1824 contain frequent references to the relations existing between the apothecaries and the physicians and to the need of a better education of the pharmacists of the state, and of a regulation by the commonwealth of the practice of pharmacy.

On June 6, 1821, the Society appointed a committee to see if the apothecaries "will conform to the Pharmacopæia," and also one, consisting of Drs. Mason, Hayward, Bigelow, Chaplin and Wyman, on "the better education of apothecaries."

October 2, 1822, the Society voted that its fellows should write recipes after January 1, 1823, according to the new Pharmacopoeia and to advise the apothecaries of their purpose by publication in the *Columbian Centinel*, *Patriot* and *Advertiser*.

June 4, 1823, it appointed a committee to render more safe the retailing of medicines and followed this by the appointment of another committee to petition the Legislature, either alone or in conjunction with the apothecaries, for the better regulation of pharmaceutical practice throughout the state.

February 4, 1824, the committee on the subject of the education of apothecaries reported, which report was accepted and the committee were requested to report from time to time upon the subject.

The first meeting of the organizers of the Massachusetts College of Pharmacy was held at the call of Dr. Ephraim Elliott (A. M., Harvard, 1780), Daniel Noyes and W. B. White, on February 7, 1823. At this meeting Mr. Terence Wakefield was chosen moderator and Mr. Samuel N. Brewer, secretary.

The only business which appears by the record of the meeting to have been transacted was the reading and the discussion of a communication from the Massachusetts Medical Society to "the Druggists and Apothecaries of Boston," and the appointment of a committee representing the Pharmacists to meet the committee of the Massachusetts Medical Society for the purpose stated in the communication, said committee to report at an adjourned meeting.

Another meeting followed this one on a date not specified in the record and a

report from the committee appointed to consult with the committee of the Medical Society was received, which report seems to have been allowed to rest in abeyance for some months, for the next meeting of the organizers appears to have been held on December 8, 1823, on which date a committee was appointed to take the report of the previous committee into consideration.

Although considerable effort has been made to ascertain the exact tenor of the communication from the Massachusetts Medical Society to the druggists and apothecaries of Boston and of the report from the committee thereupon, the work has been fruitless of result, but the substance of the communication may be inferred from a petition of the Massachusetts Medical Society to the Legislature, which petition was filed on June 6, 1823, by a committee, of which two of its members were John Gorham, Professor of Chemistry at Harvard College, and Jacob Bigelow, Professor of Materia Medica of the same institution. The petition reads as follows:

BOSTON, JUNE 6, 1823.

To the Honorable Senate and House of Representatives in General Court Assembled:

The undersigned, a committee of the Fellows of the Massachusetts Medical Society, beg leave to respectfully represent that the compounding and vending of medicines in small quantities by unqualified persons is attended by extreme hazard to the community and that mistakes of an alarming if not of fatal character have arisen from this source.

They would beg leave further to state that this evil is of such a nature as will in all probability increase with our increasing population, as physicians are daily discontinuing the practice of compounding or preparing the medicines which they use, and have therefore become in a great measure dependent upon the druggists and other retailers of medicines. They therefore pray your honorable body that the Counsellors of the Massachusetts Medical Society together with an association of apothecaries for all parts of the commonwealth, *if such an association should hereafter be incorporated,** may have the power to appoint boards of examiners in various parts of the state, who shall examine all persons who may hereafter wish to compound or retail medicines in small quantities, or to put up the prescriptions of physicians, and to grant licenses without expense to those who may wish to retail medicines, and they further pray that said board may have the power to determine upon what subjects the candidates shall be examined and be allowed to prohibit all others than those who have passed an examination or been licensed for retailing medicines in small quantities after the passing of this act prayed for, *and in case no association of apothecaries should be formed at present,** the undersigned respectfully pray that the Counsellors of the Massachusetts Medical Society may have the power of appointing the boards of examiners and proceeding in the business alone until *such an association may be formed,** and as in duty bound will ever pray.

JOHN G. COFFIN,
DANIEL THURBER,
GEORGE HAYWARD,
JACOB BIGELOW,
JOHN GORHAM.

This petition shows conclusively the desire of the Medical Society that an association of the druggists should be formed to co-operate with it in the regulation of the practice of pharmacy in the state, and also the lines along which its committee

* The italics are ours.

was proceeding, and it is therefore considered probable that the business of the letter to the druggists which was considered at the first meeting of the organizers concerned the formation of such an association.

The petition of the Massachusetts Medical Society was opposed with acrimonious articles in the press of that day, principally in communications signed "Vesicator," in which articles the members of the Medical Society were termed pickpockets, tyrants and accused of being influenced solely by mercenary motives, and the Legislature gave the Society leave to withdraw its bill and petition.

But, notwithstanding this, the endeavor set in motion by the Society continued to receive the approval of the druggists, at least so far as it related to their organization and education. On December 11, 1823, an adjourned meeting of the organizers was held at which meeting letters were read from several of the trustees of the College of Apothecaries in Philadelphia; these letters presumably supporting the idea of the organization by the pharmacists of Boston, and a committee was appointed to draft a constitution and by-laws and to report a plan for a permanent organization.

On December 26, 1823, this committee reported a plan of organization and a constitution, both of which were adopted by the organizers and the meeting then adjourned until December 29, 1823, on which date the first board of officers for The Massachusetts College of Pharmacy was elected and the college came into actual being; Dr. Ephraim Elliott being chosen as its first president.

The New England Journal of Medicine and Surgery thus notes the birth of the college, in its issue of January, 1825:

MASSACHUSETTS COLLEGE OF PHARMACY.

An institution with this appellation has been organized in this city and has gone into operation. Its objects are stated in the preamble of the constitution to be: 'to provide the means of a systematic education; to regulate the instruction of apprentices, to promote a spirit of pharmaceutical investigation and to diffuse information among the members of the profession; to discountenance the sale of spurious, adulterated and inferior articles, etc.' We are happy to perceive upon the list of members the names of the most reputable apothecaries in this city and we hope most sincerely that the laudable and truly important objects which they have in view may be fully answered.

The preamble of the constitution adopted by the organizers is noteworthy. It reads as follows:

PREAMBLE.

The apothecary is intimately connected both with the mercantile and the learned professions. On the one hand, he must become acquainted with the principles and the various forms of commercial transactions, and acquire the enterprise, prudence, and skill of the merchant; and on the other he must familiarize himself with the branches of natural science which are cultivated by the physician.

Medical science has for its object the cure of diseases. For this purpose, the character of the diseases and the remedies for them must be ascertained. It is often found requisite in the general practice of medicine that the numerous remedies should be collected, prepared and kept in a proper state for exhibition. This latter branch belongs to the pharmacist and is by the division of science in this country, assigned to the apothecary, while the former is reserved exclusively to the physician.

Pharmacy embraces a knowledge of the physical and chemical qualities of

medical articles, and the art of preserving, preparing and compounding them for application in practice. Of these the preparation of medicines is the most important and includes the principal operations in pharmacy. These operations require not only a knowledge of the general principles of chemistry, but also an extensive, minute and practical acquaintance with its details and manipulations. Since, then, it is committed to the apothecary to select and prepare the medicines on which the practitioner depends for his success in preserving life and restoring health; since these medicines are very various in number and quality, and require extensive and accurate knowledge for their preparation; since also they are easily sophisticated so as to destroy their efficiency without it being detected by simple inspection (thereby increasing the temptation to adulterate which arises from the competition in prices), it is at once apparent that a scientific and practical education in pharmacy is requisite, to qualify the apothecary for discharging the duties of his profession with credit to himself and with safety to the community.

In order therefore to provide the means of a systematic education; to regulate the instruction of apprentices, to promote a spirit of pharmaceutical investigation, and to diffuse information among the members of the profession; to discountenance the sale of spurious, adulterated and inferior articles; to regulate the business as far as practicable and consistent with our social institutions; to cherish habits of friendly intercourse, and in general to advance the character and interests of the profession, we the undersigned, druggists and apothecaries, agree to associate together under the following constitution, which we adopt in principle and to which we will adhere in practice.

On April 12, 1824, by-laws were adopted of which the following are worthy of being noted:

Article 3. No members shall receive an apprentice for less than five years, and it shall be obligatory upon all apprentices to attend the lectures of the College, and it was further provided that to be eligible for membership a person must have served an apprenticeship for three years with a person competent to instruct him.

September 24, 1824, it was voted to levy a fine of 25 cents on all members not present at the beginning of the meetings, and 25 cents extra on all those not present at its close.

March 16, 1825, President Elliott declined re-election as president and a letter of sympathy was sent him by the College for the affliction which caused his declination.

Trade questions obtruded themselves early into the business of the College, for on March 16, 1825, the question of a regulation of retail prices was considered and a committee was appointed to prepare a list of prices for the trade, and again on March 21, 1827, another committee for the same purpose was appointed, and another on September 16, 1829.

On March 17, 1830, the price of sulphate of quinine was fixed at two cents per grain for quantities under forty grains, and on March 16, 1831, the retail prices were again the subject of regulation, and on September 20 of that year the price of citric acid was fixed at fifty cents per ounce; sulphate of quinine at three shillings and nine pence per drachm, and bi-carbonate of soda at eight cents per ounce, and it was voted that the president inquire of the Boston Association of Physicians relative to blisters, whether the size written by them means to include the margin or otherwise.

On September 26, 1831, early closing of the shops was considered.

On March 21, 1832, a committee was appointed to investigate the retailing of medicines by wholesalers, and on September 23, 1833, another committee was appointed to revise prices. On December 18, 1833, this committee reported the price of morphia and its salts should be six cents a grain, and strychnine twelve and a half cents per grain.

December 16, 1835, another committee was appointed to revise prices, and they reported that the price of kreosote should be two cents a drop, bi-carbonate of soda six cents an ounce, Seidlitz powders fifty cents a box; Rochelle powders thirty-seven and a half cents a box and soda powders twenty-five cents a box.

Almost all the business transacted was in reference to prices, but little attention being given to the question of the education of apprentices although some effort was made for the formation of an exchange and library for the trade, and in the winter of 1826 and '27 the college secured the services of Professor John W. Webster, the Professor of Chemistry at Harvard College, to give a course of lectures before its members, and in 1830 a similar course was delivered by Martin Gay.

March 16, 1831, it was voted that the trustees may establish a School of Pharmacy and that they may nominate one or two lecturers on the sciences connected with Pharmacy.

December 17, 1835, it was voted that "apprentices belonging to members of this society shall attend Dr. Hale's lectures on Chemistry and Pharmacy once a week," but March 18, 1835, the Committee on Lectures reported that owing to the illness of Dr. Hale, the course of lectures had not commenced.

December 14, 1842, the expediency of dissolving the college was considered and on March 21, 1843, it was voted to suspend the article relating to meetings and to have but one meeting a year, and here the record closes of the early days of the College for no further meetings are made the subject of record until December 31, 1850, when a meeting was called by the secretary at the request of William A. Brewer, Thomas Restieaux and Daniel Henchman for the purpose, as stated in the call, of "reviving the Society."

At this meeting Mr. William A. Brewer was elected president of the College, and a complete reorganization was effected, with a membership of about sixty, and pharmaceutical meetings were appointed for each month.

Mr. William A. Brewer, writing from New York City in 1881 at the age of seventy-four years, in a series of interesting letters, now in the Medical Library, relating to the early history of the College and which throw interesting side-lights upon its history, says:

It is sixty years since I entered the drug business as apprentice to the firm of Bartlett & Brewer, the junior partner being an elder brother. Its business was wholesale and retail, and they prepared everything possible for our sales in the country and town. About two years after I entered the business the conference of Dr. Ephraim Elliott and Mr. Daniel Noyes with a few of the oldest dispensing apothecaries led to the creation of the Massachusetts College of Pharmacy.

Mr. Brewer gives the most credit for the scientific character of the College to Mr. Daniel Noyes, whom he says was a graduate of Harvard and evidently by his account, one who appreciated the necessity for a systematic and thorough education of pharmacists.

April 3, 1852, the College was granted a charter by the state, and February 29, 1876, this charter was indefinitely extended.

During the winter of 1852 a course of lectures on Chemistry was given by Charles T. Jackson, M. D., and in 1853 and 1854 a course of lectures on Pharmaceutical Chemistry was given by Professor J. P. Cooke of Harvard College and in 1858 Mr. Charles T. Carney delivered a course of lectures upon Pharmaceutical Chemistry. None of the courses was largely attended and the effort to evolve a systematic course of instruction failed of any definite result, but they doubtless sowed the seed which was to bring abundant fruit in the future.

Nine years later in the spring of 1867, largely through the efforts of George F. H. Markoe, the board of trustees authorized Mr. Markoe and Mr. Henry W. Lincoln to arrange for the delivery of a course of nine free lectures upon Pharmacy, these lectures to be given by Mr. Markoe. The number of persons attending this course was twenty and its results were such that the College decided to inaugurate a systematic course of instruction in the fall of that year, and a circular was issued announcing that a course of lectures on Chemistry, Materia Medica, Botany and Pharmacy was to be inaugurated on December 11, 1867, at the rooms of the College, No. 12 Temple Place. These lectures were opened by an introductory lecture by Mr. Samuel W. Colcord, the chairman of the board of trustees. The lecturers were, for Pharmacy; George F. H. Markoe; for Chemistry, E. L. Stoddard; for Materia Medica and Botany, C. M. Tracey. The fees for the three courses were \$25.

The circular announcing this important step forward in the life of the College was signed by Thomas Hollis, Henry W. Lincoln and George F. H. Markoe.

Since this time there has been no break in the instruction of the College and its history has been that of every other educational institution, with changes of its faculty and progression and development along the lines natural to such an institution.

The College has received several bequests and donations to its funds which have placed it upon a secure and safe foundation for the future, and it should become by a wise development of its resources, an institution second to none in the country and a credit even to Boston, with educational institutions of which any city might be proud.

The most important of its bequests is that known as the Warren B. Potter fund. Its history is singular in the fact that the generous donor of this fund stipulated that it should bear the name of her husband, rather than her own, another instance of self-abnegation with which the history of womankind abounds.

Warren B. Potter was a wholesale druggist of Boston, who died in the possession of about \$3,000,000. His will, after his decease, bequeathed to his wife the sum of \$5000 and the income only from the remainder of his estate during her life, and no mention of the College was made in the will.

At the death of Mrs. Potter, in 1904, she bequeathed, from her savings from this income, \$50,000 to the College and made it a residuary legatee, the College receiving as such the additional sum of \$196,699.69, making the total amount received from this philanthropic woman \$246,699.69. Because of the stipulation that the fund should bear the name of her husband, her service to the College has not met with the recognition to which she is justly entitled, and it is to be hoped that some

way may be devised to keep her name before the members of the College and before the members of the profession as one whose memory should be perpetuated, not only as a patron of the College and the profession of Pharmacy, but also as the generous friend of humanity, for her bequests to other institutions and charities mark her conspicuously as one whose noble gifts entitle her to that name.

The history of the College since 1867 has been uneventful and is marked simply by the changes which inexorable time brings to the life of every institution as well as to that of every individual. With ambition to improve the character and standards of Pharmacy and to make itself a beacon-light for the profession in America, it is assured of a glorious future and not alone of a glorious one, but what is better, one most useful to American Pharmacy and to America.

In closing I desire to acknowledge my very great appreciation of the assistance rendered me in the preparation of this study by Professor B. F. Davenport, the former Professor of Chemistry of the College, and E. H. Brigham, M. D., the Librarian of the Massachusetts Medical Society, without whose kindly and helpful aid I would have been unable to secure much of the interesting material relating to the history of the College.

THE PROBLEM OF THE MODERN DRUGGIST.

"But the fact must be faced squarely that the old use of complicated prescriptions has been greatly curtailed and that it must continue to decline. There are two ways of solving the problem of the druggist. The easiest way is for him to relegate his profession to still greater obscurity, pushing his prescription counter farther and farther to the rear, and making it smaller and smaller, giving greater and greater attention to the business of soda water, cigars, magazines, postal, express, gas, laundry and other agencies, stationery and toilet articles and the like. Some druggists have already solved the problem so satisfactorily in this way that they say openly that they do not care an obstruction to a stream of water-n, whether they get prescriptions or not. This is an undignified solution, but a few weeks of European travel rather tend to convert one to the view that the type of American drug store, with its many conveniences, is something to be retained, even with quack medicines. The latter, indeed, have a conservative value in acting as fool killers and in reducing certain patients to the point at which they are glad to accept skilled medical attendance.

"The second way of solving the problem is for the druggist to study critically the advance of medical science and art and to meet the new demands made upon him or, rather, which may be made upon him if he will prepare for them. For example, he might secure quite a little business merely by keeping track of new remedies, inquiring as to the likelihood of their use in his own community, putting them in stock or, at least arranging for their delivery more promptly than the physician can secure them on direct order. Co-operation would help in this regard."—*Buffalo Medical Journal*.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY.

When, at the Detroit meeting in 1866, the Association honored me with election to the chairmanship of the Committee on the Progress of Pharmacy, I wondered how, without any experience in literary work, it would be possible for me to prepare an acceptable report in the light of previous reports so ably made by Procter, Parrish, Maisch, and others, and it was with no little trepidation that I began the important task thus committed to me at the first meeting of the Association which it was my privilege to attend. But it would be false modesty if I were to deny that I accomplished the allotted task to my own satisfaction; and that it was acceptable to the Association also, is shown by the fact that—no other member being at the time available—I was again entrusted with the duty of making the report on the progress of pharmacy at the following meeting in New York, in 1867.

It is thus but natural, that having made two consecutive reports I should have been looked upon, in some degree at least, as an authority and should have been frequently consulted on questions pertaining to the work of the Committee on the Progress of Pharmacy, the more particularly because of the increasing difficulty from year to year to find members competent, and if competent willing to undertake the work; and when, in 1872, the chairman of this committee, who was elected although not present, was unable to accept the task of making the report, I was prevailed upon by other members of the committee to make a "volunteer report" which was duly presented at the Richmond meeting of the Association in 1873.

At this meeting the Association decided to abolish the Committee on the Progress of Pharmacy and to appoint a reporter, whose duty it would be to make the annual reports heretofore made by that committee. Logically, the choice fell upon me to fill the newly created office, and it has so happened that with the exception of four years (1892-1895), following my resignation in 1891 by reason of impaired health, I have made the reports on the progress of pharmacy annually to the present date.

During these many years as reporter, the work of abstracting the Journals and preparing the manuscript for the printer has been done by me without assistance; and, with the primary consideration to give the rank and file of the pharmaceutical profession actually engaged in business a clear review of the more important papers that have been published in the world's periodical literature on subjects related to the professional as well as practical side of their calling, the accumulated facts were presented in a form in which they might be utilized without the necessity of referring to the original when practicable, or, when not, with sufficient explanation to justify looking up the original. For the brief reference to some newly discovered fact or observation, while in most cases sufficient to the professional man, the teacher, or the chemist, who has access to a well appointed library, is useless to the average pharmacist who probably has convenient access only to one or two journals, and whose interest may be awakened only by a more

detailed description. I conceived that what interested me, and what I could understand, would also be interesting and understood by the practical pharmacist, and this enabled me to decide what to include (and its extent) and what to omit in the report, from the many subjects that have increasingly presented themselves from year to year.

Losing sight of the main purpose of the report on the progress of pharmacy, *to present a comprehensive and orderly review of the advances made in matters related to the practice of pharmacy during certain specified periods, that would prove of the greatest value as a work of reference for future consultation or research work*, it has frequently been urged that there is too great a delay in the publication of the report, and that the information contained therein has in a certain sense become obsolete before it reaches the eye of the members through the medium of this report. It would be futile to argue with those who hold this view and do not consider its more important value as a work of reference; but it must be conceded that it is desirable to shorten the interval between the period covered by the report and the accessibility of its contents to the members of the Association. This has hitherto been impracticable for two reasons: firstly, because the labor of making the report devolved upon a single individual; and, secondly, because its prompt publication depended on the regularity with which the minutes and other matters for publication were available to the editor of the "Proceedings."

It is now confidently hoped that these untoward conditions will be remedied by the decision of the Association to publish a monthly "Journal," in lieu of the annual volume of "Proceedings," in which such interesting abstracts for the report as are available will be published in advance of the Report on the Progress of Pharmacy. This report is hereafter to be a separate publication, and by giving the reporter the assistance of a number of collaborators, of his own selection, the work of making the abstracts will be divided, and the delay in publication materially shortened. Under the new arrangement, also, the period to be covered by the report for the present year (1911) is to be extended so as to include the six months from June 30 to December 31, making a total of eighteen months, and hereafter the reports are to cover the calendar year, from January 1 to December 31 inclusive. The increased work imposed by extending the period of the report for 1911 to December 31, will necessarily cause some delay in its publication, but it may be confidently expected that the manuscript for future reports will be ready within a month or six weeks after the appearance of the last journal to be abstracted.

In conformity with the new plan I have selected a small number of abstracts which, as they will appear in the Report on the Progress of Pharmacy for the year 1911, are herewith submitted.

C. LEWIS DIEHL.

Papyrus Plants.—Indigenous Occurrence along the Cyane River in Sicily.—Dr. P. Siedler gives an interesting account of a journey to one of the few localities in which the plant producing the "papyrus" of the ancients, botanically known as *Cyperus Papyrus*, L. (*Papyrus Antiquorum*, Willd.), is still found. The plant is said to have disappeared completely from Egypt, but along the Cyane.

a river which empties along with the Anapo into the basin of the "Porte Grande" of Syracuse, in Sicily, it is still found and, particularly at the headwaters, in great profusion, forming dense thickets on both sides of the river. These plants, rising from the water in straight stems to the height of five meters, are surmounted by a wealth of flowers in form of graceful plumes, and afford a novel

and magnificent feature of the landscape. The stems are blunt-three-cornered and have a circumference of about 18 Cm. at the base, tapering to the apex from which the plumes expand to the number of more than 100 rays. The boatmen illustrate the manner of making the sheets of "papyrus," by splitting sections of the stems deprived of the sheath and about 30 Cm. long into strips about 20 Mm. thick, and plaiting these strips into a mat or sheet, which when flattened out under pressure forms a sheet of papyrus suitable for receiving inscriptions or for decoration with drawings and paintings—such decorated sheets being offered for sale in the stores of Syracuse as mementos. While it is permitted to take samples of the papyrus plants, cut off above the roots, from the country, it is not permitted to take plants abroad with the living roots attached.—Pharm. Ztg. to VI (1911), No. 63, 634-63.

Derris Elliptica.—*Characters of Active Constituent*.—W. Lenz has extracted from the roots of *Derris Elliptica* by means of boiling benzene a crystalline principle possessing the poisonous properties of the drug, which is used in Java as an insecticide and fish-poison, and is also said to be a constituent of the Borneo arrow poison called "Siren." The new principle, for which the author proposes the name

Derrin, crystallizes from benzene in delicate, yellowish laminae, which are rendered nearly colorless by washing with cold ether. It is obtained in colorless crystals also from its alcoholic solution; melts at about 158°, and is readily soluble in acetone, benzene (benzol) and chloroform, but difficultly in cold alcohol and cold ether.

The new substance must not be confused with "Derrid," an amorphous, resinous body isolated by Greshoff (see Proceedings 1891, 655), from the root-bark of the plant, and is described by v. Sillevoldt as a yellow powder, melting at 73°, and having an aromatic taste, followed by a benumbing sensation similar to cocaine. Arch. d. Pharm. 249 (1911), No. 4, 298-304.

Derris Stuhlmanni.—*Constituents of the Root-bark*.—W. Lenz records some preliminary investigations of the root-bark of *Derris Stuhlmanni* received from German East Africa where it is employed as a snake antidote both externally and per os. It yielded to petroleum ether 3% of a colorless fat of

ointment consistence; then to ether 5% of a white wax-like mass, melting at 89°-90°, and evidently mainly composed of a wax-alcohol; then to alcohol 2% composed mainly of resin and wax free from tannin and sugar, but had a vanillin-like odor without, however, giving its reaction. The extracted material then yielded 10.2% of a mucilaginous substance to water, consisting when completely dry of a horn-like mass, having an insipid sweet test, and containing an abundance of sugar.—Ibid, 304-305.

Digitalis Leaves.—*New Researches on Glucosides*.—In a preliminary article giving the results of his researches on the glucosides of digitalis leaves, Dr. F. Kraft observes that among the digitalis glucosides described by Schmiedeberg in 1875 (see Proceedings 1875, 444-447), *digitalein* was regarded as the most important, since it combined activity with water-solubility, and would therefore be a constituent of a properly-prepared infusion of the drug. Nevertheless, neither Schmiedeberg, nor later Kiliani, succeeded in preparing a chemically pure body to which the specific name "*digitalein*" could be applied with the assurance of uniformity in composition, activity, and chemical properties; and the same holds true of the so-called "*digalen*" described by Cloetta (see Proceedings 1905, 532), which must also be considered a more or less impure form of "*digitalein*." But, by avoiding all reagents and operations that are liable to cause its decomposition, Dr. Kraft has for several years past succeeded in preparing "*digitalein*" in a pure, water-soluble form, which he now describes and proposes to distinguish by naming it

Gitalin.—This, as obtained by a very simple process, described in some detail by the author, is a white amorphous powder, permanent in the air, neutral in reaction, and melting at 150°-155°. It is soluble in 600 parts of cold water and in all proportions in chloroform without undergoing change; soluble also in the other organic solvents, with exception of petroleum ether and carbon disulphide, but in these solutions, even in that of ether, it quickly undergoes change, forming a water-insoluble modification. It is obtainable also in a crystallized form, as

Gitalinhydrate; but this shows considerable variation from the original amorphous product, and melts at 75°. It is sparingly soluble in water (3000 parts) and in alcohol; but un-

der proper treatment can be dehydrated and restored to its original condition.—Schw. Wochr. f. Chem. u. Pharm. XLIX (1911), Nos. 12 and 13, 161 and 173.

Russian Opium.—*Morphine Content of a Sample Cultivated at Dorpat.*—J. J. Muschinski observes that although the poppy is cultivated as an oil-producing plant in the southern and western governments of Russia, experiments to obtain opium have practically been neglected, while the few endeavors that have been made (in Turkestan and Transcaucasia) resulted in the production of inferior opium, as was shown in the Russian Exhibit at Vienna in 1873. The author says that in the summer of 1910 two kinds of poppy were grown from seed in the Dorpat Botanical Garden, the one from the seeds of *Papaver Somnifer.*, L. var. *Glabrum*, Boiss, the other from the seed of the poppy commonly cultivated for its oil. Owing to unfavorable weather conditions, the experiments with the former failed; but they proved very satisfactory with the common poppy, the weather conditions being favorable during the collection of the opium, in the usual manner, by incisions. The darkened and thickened exudation when scraped into a glass dish and dried at a moderate temperature, amounted to 7.5 Gm., and had the characteristic odor, taste and color—the latter perhaps a little lighter—of commercial opium. When dried at 100°, this opium lost 11.4% of moisture, and assayed by Dietrich's method 12.2% of morphine.—Pharm. Ztg. (LVI, 1911), No. 60, 604; from Farmaz. Journ. Russ., 1911, 246.

Umbelliferous Fruits.—*Content of Fixed Oil and Its Character.*—Dr. Clemmens Grimme has made some interesting investigations concerning the fixed oil content of umbelliferous fruits which in the industrial distillation of volatile oils are not taken into account and are usually included in the still residues which are utilized either in the moist or dried condition for agricultural purposes, as cattle food, etc. The fixed oils were prepared from the best known of the umbelliferous fruits by extracting them with ether, and after distilling off the solvent heating the residue to drive off the volatile oil as completely as practicable. This treatment did not deprive the residual fixed oil completely of the odor of volatile oil, which, however, was due to mere traces of the latter and did not interfere

with the determination of the physical and chemical characters and constants. They were usually dark-colored liquids, having an aromatic taste and odor, variable congealing points, and were obtained in a yield of from 10 to 18 percent—a yield that would seem to justify the assumption that, considering the enormous quantities of these fruits that are modernly subjected to distillation, it might prove quite profitable to separate the fixed oil from the still residues which would remain after suitable treatment for this purpose, quite as valuable for the purposes of cattle-food. The fruits that have been examined by the author are the following: *Carum Carvi*, L.; *Petroselinum sativum*, Hoffm.; *Apium graveolens*, L.; *Pimpinella Anisum*, L.; *Daucus Carota*, L.; *Foeniculum Officinale*, L.; *Anethum graveolens*, L.; *Cuminum Cuminum*, L.; *Anthericum Cerefolium*, Hoffm.; *Coriandrum sativum*, L.; and *Ptychotis Ajowan*, D. C.—Pharm. Zentralh. LII (1911), No. 25, 661-667.

Licorice.—*Cultivation in Moravia.*—Prof. W. Mitlacher gives some interesting information concerning the cultivation of the licorice plant in the Austrian province of Moravia, where it is conducted on an extensive scale on the southern declivities of the hills encompassing the Thaja River, in the loose, sandy soil that is equally adapted to grape culture. In fact, the two crops are periodically alternated in some sections. The fields are planted with sections of runners about the thickness of a finger and 30 Cm. in length, in a slanting or horizontal position, about ½ M. apart and to a depth of about 30 Cm., and then covered with soil. The plantation is then left practically without attention for four years, the time required for the maturing of the crop; the only attention given being the occasional loosening of the soil, and the removal of weeds or of unhealthy plants. During the first years the plants only produce thin switches, which in the following years, however, develop into strong densely foliated stems and reach their maturity in the fourth year, when the crop of licorice root is collected. From the root-stocks and the runners remaining in the ground, new plants are then produced, reaching as before their maturity in four years, so that crops of roots are obtained in a number of successive periods of four years each, depending on the fertility of the soil, aided at

the beginning of each period with the application of manure, until the soil is practically exhausted. The planting may be done during the first half of April or in the fall of the year; the harvest begins in September and continues until the middle of March. The product, consisting of handsome thick roots and runners, commercially designated as "roots," is light-yellow in transverse section and has a pure sweet taste, while an inferior product, composed of the shoots of the subterraneous stem and small runners, is used for the purpose of making licorice paste, which is also made largely in Moravia from the better "roots."—Pharm. Ztg. LVI (1911), No. 57, 576; from Pharm. Praxis., 1911, No. 6.

Matricaria Discoides, D. C.—Increase of this American Species in Europe.—Schimmel & Co. mention that *Matricaria discoides*, D. C., a plant resembling German Chamomile, but smaller and particularly differing in having much smaller marginal flowers, has acclimated itself in Europe with surprising rapidity since it was introduced from North America about the middle of the nineteenth century. It is very common, for example, in Württemberg and in many parts of Alsace-Lorraine, in particular in the neighborhood of railway stations, and has also been observed in the vicinity of Leipzig, where Schimmel & Co. have caused a small quantity to be collected for distilling purposes. From the entire plant, all parts of which appear to contain volatile oil, they obtained 0.15% of a dark brown oil, studded with paraffin crystals when at ordinary temperature. Its odor is intermediate between that of common and Roman chamomile oil; sp. gr. at 30°, 0.9175; acid val., 18.7; ester val., 77.5. On account of its fairly considerable paraffin-content the oil did not form a clear solution even with 90% alcohol. The separated paraffin, recrystallized twice from dilute alcohol, melted between 58° and 61°.—Schimmel's Rep., Oct., 1911, 107.

Wax Oil.—Composition.—Th. Ekecrantz and E. Lundström have made an interesting investigation to determine the composition of Wax Oil, an obsolete preparation which under the name *Oleum Cerae* was formerly official in many of the European pharmacopœias and is still employed externally as a remedial agent. Practically nothing is known regarding its components, and the little that is published in the literature refers to a product that is obtained by dry distillation either from

the beeswax direct or in admixture with indifferent substances—such as sand or brick dust, whereas the commercial wax oil is at the present time always prepared by the dry distillation of the wax with burnt lime. Obviously, the products obtained by the latter method must differ in composition from those obtained by the direct distillation of the wax, and the authors therefore prepared the wax oil for their examination by subjecting beeswax of assured purity to distillation three times, with twice its weight of lime, obtaining thus about 67.5% of a brown-yellow oil, which gradually congealed into a grey-yellow mass, interspersed with crystalline leaflets. This yielded when distilled with steam about 50% of a mobile, yellow-green liquid of sp. gr. 0.7825, having pronouncedly the odor of the wax oil, and consisting of a mixture of saturated hydrocarbons. The portion of the wax oil not volatilized by the steam consisted preponderantly of "nonokosan," $C_{20}H_{42}$, which is probably produced by the oxidation of the myricyl alcohol of the wax to the corresponding acid and the subsequent splitting off of carbon dioxide. The valuation of a sample of wax oil may properly depend on the following constants: Specific gravity, 0.790 to 0.792; acid number, between 8 and 12; iodine number, between 80 and 90.—Archiv. d. Phar. 248 (1910), No. 7, 500-513.

Paraldehyde, G. P. I'.—Contradictory Requirements.—R. Richter points out that while the new German Pharmacopœia admits the presence of 4% of acetaldehyde in paraldehyde, which must be otherwise free from contaminants, the constants and tests given apply to pure paraldehyde. Thus, the specific gravity at 15° is given at 0.993-1000, the boiling point at 123°-125°, while the congealing point has been lowered (from the M. P. 10.5 given in the G. P. IV) to 6.5°. The author finds, however, that otherwise pure paraldehyde, containing 4% of acetaldehyde, has a sp. gr. at 15° of 0.993, this being due to the much lower specific gravity (0.7876) of the contaminant; and that, although the congealing point of such a mixture is 6.50, on distillation about 54% distil over before the temperature has risen to 122.7°, the remainder (46%) passing over between 122.7° and 124.2°. It is somewhat problematical whether it is the pharmacopœial intent that paraldehyde shall or that it may contain 4% of acetaldehyde; but the author can see no reason for its presence, since it can easily be

removed from the commercial product by fractionation. Indeed, he is of the opinion that its presence is liable to produce untoward by-effects, this opinion being warranted by his experience in the treatment of the insane with paraldehyde in a prominent German asylum. He therefore concludes that acetaldehyde should be excluded from paraldehyde as far as possible by observing the following requirements: 1. Specific gravity as high as possible, preferably within the limits of the G. P. V. 2. Boiling point conforming practically with the G. P. V. 3. Congealing point from 10°-12°. 4. Quantitative determination of *metalddehyde*, which is always liable to be formed during the spontaneous conversion of paraldehyde into acetaldehyde. This is accomplished by evaporating 10 Gm. of the paraldehyde at a low temperature. In all other respects the tests of the G. P. V. will suffice.—Pharm. Ztg. LVI (1911), No. 53, 536-538.

Cantharidin.—*Quantitative Determination in Cantharides and the Tincture.*—The "Hagen-Buchholz Prize" of 1909-10 for the best essay on the subject of "A Comparative Examination of the Methods which have been proposed for the estimation of free and combined cantharidin in Cantharides and Tincture of Cantharides," has been awarded by the German Apothecaries Society to three papers, contributed by A. Kneip, N. Ney and F. Reimers, respectively, a symposium of which is published in the *Archiv. der Pharmazie*. From this, it appears that by experimentation with the various published processes, as well by processes of their own these three authors have reached results which differ very decidedly from each other. Ney recommends the method of Panchaud as modified by Siegfried, with some modifications of his own, and Reimers recommends the method of the Pharm. Germ. as modified by Fromme. Both of these methods depend on the use of chloroform for the extraction of the cantharidin after certain preliminary treatment with acids—the one sulphuric, the other hydrochloric acid. Kneip, on the other hand, recommends a method of his own, in which, after acidification of the powdered cantharides with alcoholic hydrochloric acid (25% HCl), they are extracted with a mixture of 30 parts of petroleum ether and 50 parts of benzol. Both Kneip and Reimers also determined the water-content in the drug and the ash (found by Kneip to be 7.45-11.58%

and 5.54-6.99%, respectively), and Reimers also determined the percentage of fat in the sample. The results obtained by the three authors are exhibited in the following:

	Ney	Kneip
Total Cantharidin	0.885%	0.918%
Free Cantharidin	0.580%	0.730%
Combined Cantharidin....	0.305%	0.188%

Reimers
(3 Samples)

Total Cantharidin	0.878%	0.889%	0.809%
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For the details of these highly interesting papers (and the various processes experimented with) the original "symposium" must be consulted in *Arch. d. Pharm* 249 (1911), No. 4, 259-285.

Tincture of Cantharides.—*Quantitative Estimation of Cantharidin.*—Dr. R. Gaze recommends the following method for the quantitative estimation of Cantharidin in Tincture of Cantharides: 50 Cc. of the tincture, 25 Cc. of water and 1 Cc. of solution of sodium carbonate (1:2), are evaporated to dryness on a water bath; the residue is dissolved in 10 Cc. of water, 2 Cc. of hydrochloric acid (25%) are added, and the mixture is transferred and rinsed into a separatory funnel, in which it is shaken out consecutively with 10, 5, 5 and 5 Cc. of chloroform. The chloroformic solution and washings are evaporated to dryness in the flask in which they have been collected, on a water bath, and finally with the aid of a bellows, and after standing twelve hours the dry residue is washed consecutively with 10, 5, 5, 5 and 5 Cc. of petroleum ether, the fractions being decanted through a small filter. The washed contents of the flask and the filter are allowed to become air-dry, then washed first with 10 Cc. of water containing one drop of ammonium carbonate solution, followed by pure water—and dried at 50° C. The residue in the flask is now dissolved in a little acetone, the solution filtered through the washed and dried filter into a weighing flask, the flask and filter being washed quantitatively with sufficient acetone. The acetone solution is evaporated at a gentle heat, finally with the aid of bellows, and the brownish-yellow residue in the weighing flask is then heated at 50° in the water-oven to constant weight.

The method under certain preliminary modifications is also applicable to the determination of Cantharidin in "*Oleum Cantharidum*," but the details must be consulted in the origi-

nal paper.—Apoth. Ztg. XXVI (1911), No. 34, 332-333.

Extracts of Belladonna and Hyoscyamus.—Superiority of the Alcoholic Extract from the Dried Drugs.—The new German Pharmacopœia (V) having, in conformity with the "Protocol" adopted by the International Pharmaceutical Congress at Brussels, dismissed the extracts of belladonna and hyoscyamus prepared from the fresh plants and replaced them with extracts prepared from the dried leaves of the plants, by percolation with 70% alcohol, P. W. Danckworth has made a series of experiments in order to ascertain the relative value of the two methods of preparation, as well as the advantage, if any, of using only the leaves instead of the whole herbaceous portion. Extracts were accordingly prepared from fresh herb and leaves by the process of the G. P. IV, and from the dried herb and leaves by process of percolation directed in the "Brussels Protocol," the material being of the identical harvest, and the resulting extracts adjusted so as to retain 15% of water. Referring to the original paper for the details of these experiments, the result in the case of *Belladonna* may be condensed as follows:

1. The leaves contain less alkaloid than the entire herb.
2. By percolation of the dried drug with

70% alcohol the yield of extract is not only larger, but the alkaloidal content is also greater than in the extract made from the fresh drug.

3. The extract obtained by percolation from the dried herb contains more alkaloid than that obtained from the dried leaves, but the yield of extract from the leaves is greater.

4. The international requirement that the extract shall retain only 10% of water should be changed to 15%.

It is of practical interest that the yields of extract, containing 15% of water, when calculated for the fresh herb and leaves respectively, was as follows:

Herb: Fresh, 1.88% (=1.699% alkaloid); dried, 3.97% (=1.917% alkaloid).

Leaves: Fresh, 2.02 (=1.207% alkaloid); dried, 5.38% (=1.282% alkaloid).

The actual yield from the dried material was: From herb, 31.30%; from leaves, 29.88%. If the chlorophyll is filtered out after distilling the alcohol from the percolate, these quantities are reduced to 26.6% and 25.55% respectively, the percentage of alkaloid being correspondingly increased.

Similar results were obtained with *Hyoscyamus* leaves and herb, but these were confined to a single specimen each of the herb and dried leaves.—Arch. d. Pharm. 249 (1911), No. 4, 247-253.

ENTHUSIASM.

Enthusiasm is that life spark that comes into vital contact with the hearts of men and which influences them in a way that promotes the greatest activity and devotion to a cause.

Cold, perfunctory work, no matter how intrinsically valuable, fails to obtain the psychological results that are so important in carrying any movement or project through to success, especially if either are dependent for success upon the united action and support of any considerable body of men.

In N. A. R. D. work enthusiasm has been the cement that has bound leader to leader and worker to worker and has imbued the N. A. R. D. gospel with the fervor of trade and professional philosophy and religion, making it a cause worth planning for, fighting for and sacrificing for.

When we look around us we find that successful business establishments are alive with enthusiasm and are working to achieve certain business ideals. Principle is the foundation of their enthusiasm and activity.—N. A. R. D. Notes.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

ABSINTHIUM.

WORM WOOD.

Maderwort. Wermuth or Vermuth.

The dried leaves and tops of *Artemisia Absinthium* Linné (Fam. *Compositae*).

Gray-green and finely silky-hairy and glandular throughout; largest leaves reaching 10 or 12 cm. in length and of nearly equal breadth, on long petioles, the blades roundish-triangular in general outline but three times pinnately lobed or divided, the ultimate segments oblong or obovate obtuse, entire or slightly toothed; upper leaves becoming shorter petioled, smaller and narrower, the uppermost being only about 2 cm. long and resembling the ultimate segments of the larger ones; heads racemose-pannicate drooping on short peduncles, greenish-yellow, 3 to 4 mm. broad, round-ovoid, the outer bracts linear-oblongate, obtuse, the inner broader and scarious-margined; receptacle hairy; outer flowers sometimes sterile. Strongly and characteristically aromatic and very bitter.

On extraction with ether the air-dried leaves should not yield less than 1 per cent of a disagreeably bitter oil, soluble in alcohol, and of a taste closely resembling that of the drug. The ash content should not exceed 10 per cent.

ACONITI FOLITA.

ACONITE LEAVES.

Monkshood Leaves. Wolfsbane Leaves.

The dried leaves of *Aconitum Napellus* Linné. (Fam. *Ranunculaceae*).

Leaves orbicular-cordate in outline, long-petiolate, palmately divided, usually into

three or five segments, the sinuses extending almost or quite to the petiole and each segment subdivided into several linear, acute divisions, the lower lobes longest and somewhat spreading.

Aconite Leaves should be stored in a dry place in a closed can or bottle and should not be used if they fail to respond to the following test.—1 Gm. of the finely pulverized leaf is infused with 30 Cc. of warm distilled water and when cold strained. When the mouth is rinsed with a small portion of this strained liquid it should produce the characteristic tingling and benumbing sensation of aconitine.

When assayed by the method for assaying Aconite official in the U. S. P. VIII it should yield not less than 0.2 per cent of alkaloids.

Upon incineration Aconite Leaves should yield not over 16 per cent of ash.

ADONIS.

ADONIS.

False Hellebore. Pheasant's-eye.

The dried herbage of *Adonis vernalis* Linné (Fam. *Ranunculaceae*). Glabrous, with the exception of the younger portions, which may be slightly grayish-puberulent; stems 1.5 to 5 dm. long, thick, but soft and weak, shining, simple or branched, the branches mostly from near the base and similar to the main stem; naked below, except for some scale-like leaf-vestiges, densely leafy above; leaves 2 to 4 cm. long and two-thirds or more as broad, pinnately divided into several segments, the larger of which are again divided, the ulti-

mate segments being narrowly linear and acute; flowers terminal, yellow but usually drying to a whitish color, 3 to 6 cm. broad; sepals 5, green or grayish-puberulent, rather more than half the lengths of the petals, oblong, obtuse, finely nerved; stamens indefinite; pistils numerous, in fruit forming an ovoid, obtuse, dense head of ovoid akenes, which are tipped with the very small persistent styles. Odor indefinite. Taste bitterish, afterward somewhat acrid.

Upon incineration *Adonis* should yield not more than 12 per cent of a white ash which should be almost entirely soluble in hydrochloric acid.

FOLIA ALTHAEAE.

ALTHAEA LEAVES.

Marshmallow Leaves.

The dried leaves of *Althaea officinalis* L. (Fam. *Makaccæ*) containing not more than five per cent of stems or foreign material.

Gray-green or yellowish gray-green and densely and finely tomentose throughout; petioles $\frac{1}{2}$ to $\frac{1}{3}$ as long as the blades; blades varying from 5 to 15 cm. in length and from 2 to 10 cm. in breadth, ovate or rhomboidal ovate in outline, rounded or occasionally nearly truncate at the base, acute at the summit; margin doubly serrate-dentate, the principal teeth from one to three pairs, the lowest almost large enough to be regarded as lobes, the secondary very irregular, triangulate, acute, broader than long, the sinuses acute; two to four or occasionally six principal veins originating with the midrib in the petiole, prominent underneath, terete; branches of the midrib arising at a wide angle, nearly straight, each terminating in a marginal tooth. Leaf, thin, but appearing thick by its hairy covering. Odor slight and scarcely characteristic. Taste mucilaginous. Upon incineration the ash should not exceed 15 per cent.

AMMONII HYPOPHOSPHIS.

AMMONIUM HYPOPHOSPHITE.

It should contain not less than 97.5 per cent of pure Ammonium Hypophosphite ($\text{NH}_4\text{PH}_2\text{O}_2 = 83.06$). It should be kept in well-stoppered bottles.

Deliquescent, colorless, hexagonal plates, odorless, having a saline and bitter taste.

Soluble in one part of water at 25° C., and in 14.5 parts of alcohol at 25° C.; very soluble in boiling water or boiling alcohol.

When heated in a test tube, the salt is de-

composed, with the evolution of hydrogen phosphide, which is spontaneously inflammable.

The aqueous solution is neutral to litmus paper and when heated with potassium hydrate gives off ammonia vapors.

The aqueous solution, slightly acidulated with sulphuric acid, yields with silver nitrate, T. S. a white precipitate, which rapidly turns brown or black, owing to separation of metallic silver.

The aqueous solution, slightly acidulated with sulphuric acid, yields, on heating with copper sulphate T. S., a reddish-brown precipitate.

It should not respond to the U. S. P. time limit test for heavy metals when 10 Cc. of the solution (1 to 20) is acidulated with 1 Cc. of diluted hydrochloric acid and tested as directed by the U. S. P., the total dilution for arsenic and antimony being 1 in 40, for iron 1 in 300, for other metals 1 in 100. (By total dilution is meant the dilution after addition of the hydrogen sulphide solution).

If 10 Cc. of the aqueous solution (1 in 20) be measured into a beaker containing 3 Cc. of nitric acid and the mixture evaporated to dryness on a waterbath, the residue should not respond to the U. S. P. modified Gutzeit test for arsenic.

The aqueous solution (1 in 20) should remain clear five minutes after the addition of about 5 Cc. ammonium oxalate T. S., and a few drops of ammonia water (absence of calcium salts).

Assay.—Introduce into a stoppered weighing bottle about 0.1 Gm. of ammonium hypophosphite, previously dried at a temperature not exceeding 100° C., and weigh accurately. Dissolve it in 100 cc. of diluted sulphuric acid, add 50 cc. of tenth-normal potassium permanganate V. S. and boil 15 minutes. Add 5 Cc. of tenth-normal oxalic acid V. S. and heat until the precipitate, which has been produced is dissolved. Then titrate the excess of oxalic acid with tenth-normal potassium permanganate V. S. From the total number of Cc. of tenth-normal potassium permanganate V. S. subtract the number of Cc. of tenth-normal oxalic acid V. S., multiply the remainder by 0.2076 and divide the product by the weight of ammonium hypophosphite taken. The quotient represents the percentage of actual ammonium hypophosphite present. (Each Cc. of tenth-normal potassium perman-

ganate V. S. corresponds to 0.002076 Gm. of ammonium hypophosphite).

METHOD FOR THE DETERMINATION OF AMMONIA.

Weigh accurately 2.4 gm. of the ammonium salt in a glass tube about 3 cm. long and about 1 cm. wide. Place a distilling flask of about 1 liter capacity, containing 300 Cc. water on wire-gauze, and connect it, by means of a glass tube bent at an obtuse angle, with the glass tube of a small condenser. Insert the lower end of this tube in an Erlenmeyer flask of about 700 cc. capacity, containing 50 Cc. tenth-normal sulphuric or hydrochloric acid V. S., so that the tube is below the surface of the liquid. Introduce also a few drops of alizarin red test solution (1%) into the receiver.

Now, put the unstoppered tube, containing the ammonium hypophosphite, into the distilling flask, then add 10 Cc. of 10% sodium hydroxide solution at once, connect with the condenser, and heat the contents of the flask to vigorous boiling and continue the application of the same degree of heat for about one-half hour, or until the distillate fails to color litmus paper blue. During the last fifteen minutes of boiling the lower end of the condenser need not be below the surface of the liquid in the Erlenmeyer flask.

Titrate with tenth-normal potassium hydrate U. S. Multiply the number of cc's of tenth-normal sulphuric acid U. S. consumed by the distillate by the respective factor, and divide this product by the weight of the ammonium salt taken. The quotient represents the percentage of actual ammonium salt.

ANETHOL.

ANETHOL.



The methyl ether of Para-Propenyl phenol (C_6H_5 , C_6H_4 , O CH_3) constituting the main constituent in oils of anise, star anise and fennel and obtained by fractioning, chilling and crystallizing. It should be kept in well stoppered amber colored bottles protected from light and air.

At ordinary temperatures anethol is a colorless or faintly yellow highly refractive liquid having a sweet taste and the aromatic odor of anise.

At $+20$ to $+21^\circ$ C. it solidifies to a white glistening crystalline mass which melts at 22° to 23° C.

Specific gravity 0.984 to 0.986 at 25° C.

Boiling point 232° to 234° C.

Its refractive index is 1.56 at 20° C.

It should be optically inactive or show a deviation of not over 0.08° in 100 mm. tube at 25° C. due to slight traces of the oil from which the anethol has been prepared (If from anise oil this deviation will be laevogyrate, if from fennel oil dextrogyrate).

Anethol is almost insoluble in water, readily soluble in ether or chloroform, and makes a clear solution with two volumes of alcohol.

If 10 cc. of anethol be shaken with 50 cc. of saturated solution of sodium bisulphite in a graduated cylinder and allowed to stand for six hours it should show no appreciable diminution in its volume nor should a crystalline deposit separate (absence of aldehydes).

RADIX ANGELICAE.

ANGELICA ROOT.

Garden Angelica.

The rhizome and roots of *Angelica Archangelica* Linné. (Fam. *Umbelliferae*).

Rhizomes short and thick, 5 cm. to 10 cm long, frequently crowned with the bases of stem and leaves, sometimes split, the roots are numerous, 10 to 20 cm. in length, 5 to 7 mm. thick at the base and gradually tapering to about 1 mm., frequently twisted or braided together, externally dark grey-brown to reddish or purplish-brown and with conspicuous rather deep furrows, when dry breaking with a smooth fracture.

On cross section the rhizome shows a distinct pith which is absent in the root and both exhibit a spongy bark nearly or quite as wide as the woody zone, in which are radial rows of brownish ducts containing oleoresin. The large diameter of these secretion vessels is characteristic, as they measure about 200 microns. The wood rays are finely porous and narrower than the medullary rays. The bark is rich in starch.

Insect eaten or mildewed roots should be rejected.

Angelica root has a strongly aromatic odor and a sweetish, pungent aromatic, followed by a bitter taste.

Upon incineration Angelica Root should yield not over 8 per cent of ash.

FRUCTUS ANGELICAE.

ANGELICA SEED.

The ripe fruit of *Angelica Archangelica* Linné (Fam. *Umbelliferae*).

From 4 to 8 mm. broad and 1 to 2 mm. thick, oval, the base faintly notched, the sum-

mit bearing 5 minute calyx-teeth and the remains of the style; of a pale yellowish-brown color; consisting of two mericarps joined by their broad faces, or separate mericarps each nearly flat upon one surface, which bears a central longitudinal groove and has sharp, slightly upturned margins, convex upon the other surface, which is traversed longitudinally upon the back by 3 strong ribs, separated from one another by narrow grooves and from the margin by much broader grooves; pericarp soft, rather tough and corky, showing 6 large oil-tubes on cross section, and enclosing a single seed. Odor characteristic and agreeable; taste aromatic, pungent and sweetish.

Upon incineration Angelica Seed should yield not more than 8 per cent of ash.

SEMEN ARECAE.

ARECA.

The ripe seed of *Areca catechu* Linné (Fam. *Palmae*), yielding when assayed by the process given below not less than 0.5 per cent of Areca alkaloids.

From 20 to 25 mm. long, conical, grayish-brown with numerous spiral, reddish, depressed veins running chiefly from the hilum; hard; heavy; odorless, or faintly aromatic when broken; taste astringent, bitter and slightly acid. A transverse section exhibits a marbled appearance, dark brown lines alternating with white portions, the former being folds of the seed coat, and the latter the endosperm.

Upon ignition Areca should yield not over 2 per cent of ash.

ASSAY OF ARECA.

Areca, in No. 60 powder, fifteen grammes	15 Gm.
Chloroform, one hundred and fifty cubic centimeters	150 Cc.
Ether, thirty-five cubic centimeters.	35 Cc.
Ammonia Water, ten cubic centimeters	10 Cc.
Distilled Water, fifteen cubic centimeters	15 Cc.
Fiftieth-Normal Hydrochloric Acid, Haematoxylin Test Solution, each a sufficient quantity.	

Place the Areca in a 250 Cc. Erlenmeyer flask and add 150 Cc. of a mixture composed of 1 volume of chloroform and 4 volumes of ether, the mixture having been cooled to 20° C before measuring. Stopper the flask securely, and let it stand ten minutes. Add 10

Cc. of ammonia water and shake the flask vigorously every 10 minutes for two hours. Add 15 Cc. of water, agitate, and place the flask in water at 20° C. for 15 minutes. Pour 100 Cc. of the clear liquid, representing 10 Gm. of Areca, through a dry filter into a graduated cylinder, transfer the solution to a 250 Cc. Erlenmeyer flask, wash the filter and graduated cylinder with the 10 cc. of the chloroform-ether mixture, adding the washings to the measured solution, evaporate or distil off the solvent and dissolve the residue in 5 Cc. of absolute alcohol. Add 30 Cc. of ether, 10 Cc. of water and 5 drops of haematoxylin test solution to the solution, and titrate with fiftieth-normal hydrochloric acid V. S. until the water solution is of a reddish-brown color. Add 30 Cc. of water and continue the titration until the aqueous layer becomes of a citron-yellow color or until further addition of acid fails to clarify the liquid. Each Cc. of fiftieth-normal hydrochloric acid V. S. consumed is assumed as equivalent to 0.0031 Gm. of the mixed alkaloids of Areca.

RADIX ARNICAE.

ARNICA ROOT.

Arnica Rhizome. Mountain Tobacco. Leopard's Bane.

The dried rhizome and roots of *Arnica montana* Linné (Fam. *Compositae*).

From 4 to 10 cm. long and 3 to 5 mm. thick; of oblique growth, usually curved at the upper end, cylindraceous, annulate with leafy scars, usually bearing some remains of leaf and stem bases, and with numerous rather coarse roots on the inferior surface; externally dark reddish-brown, internally whitish; rather tough, the transverse section displaying a thick bark, short yellow wood wedges and a large spongy pith, the inner bark containing a circle of rather large resin cells. Odor characteristic. Taste pungent and bitter, afterward somewhat acid.

Upon incineration Arnica Root should yield not over 12 per cent of ash.

ASCLEPIAS.

PLEURISY ROOT.

Butterfly Weed. Orange or Yellow Milk Weed. White Root.

The dried root of *Asclepias tuberosa* Linné (Fam. *Asclepiadaceae*).

Irregularly broken or transversely or longitudinally sliced pieces of an irregularly or

interruptedly fusiform root from 10 to 20 cm. long and about 1 to 3 cm. thick; externally varying from orange when fresh, to dull yellowish-gray when old, and more or less annulate and finely longitudinally wrinkled; longitudinally sliced surfaces yellowish-white concave, the upcurved edges rather sharp; fracture short; rough-granular yellowish or grayish-white, starchy, the outer layer of the thin bark yellow or orange, the wood wedges yellow. Nearly odorless and of a disagreeable, bitterish and somewhat acrid taste. Upon incineration *Asclepias* should yield not more than 9 per cent of ash.

BOLDO.

BOLDO LEAVES.

The leaves of *Peumus Boldus* Mol. (Fam. *Monimiaceae*).

From 1.5 to 2.5 cm. long by 1 to 1.75 cm. broad, the petiole 1 to 3 mm. long, stout and rigid; broadly ovate or oval, the base varying from rounded to very slightly indented, the summit rounded or slightly notched, the margin entire and sharply revolute; thick, coriaceous, rigid and brittle, from pale-green to brownish-green, papillose roughened on both surfaces, the principal veins coarsely reticulate, impressed above, sharply prominent underneath; odor peculiar, when crushed very strong, disagreeable and somewhat like that of oil of chenopodium; taste bitter, warm and pungent, peculiar, somewhat camphoraceous and slightly terebinthinate.

Under the microscope a transverse section shows a well marked hypoderm from which develop papilla-like excrescences, each crowned with a group of radiating one-celled thick-walled hairs. Those on the lower surface being somewhat smaller. Stomata numerous on the lower surface. The mesophyll contains numerous oil secretion cells.

Upon incineration Boldo should yield not over 10 per cent of ash.

BROMAURIC ACID.

Bromauric Acid $Au Br_3H Br + 5 H_2O = 607.97$ representing 71.8 per cent of its weight of the true gold tribromide $Au Br_3 = 436.96$. It should be kept in glass stoppered amber colored vials.

Bromauric acid is used in commerce to take the place of Gold Tribromide, because it is very stable and more easily obtained.

Dark red-brown, flat needle shaped crystals or irregular coarse granular masses, odorless, having a metallic and acid taste. Permanent

in the air when quite pure, but deliquescent when chloride is present.

It melts, when pure, at $27^\circ C$.

Very soluble in water and in alcohol.

If the metallic gold obtained by igniting 0.1 gm. of bromauric acid be heated with 5 c. c. nitric acid, and the acid solution diluted and filtered, no weighable residue should remain after evaporation and ignition.

The aqueous solution has a strongly acid reaction and yields with silver nitrate T. S. a yellowish white precipitate, insoluble in nitric acid, slightly soluble in ammonia water.

If 0.2 Gm. of Bromauric Acid be dissolved in 10 Cc. of water, 16 Cc. of tenth-normal silver nitrate V. S. and 12 Cc. of ammonium carbonate T. S. added, the mixture digested 10 minutes on a waterbath, then cooled and filtered, the filtrate, on supersaturating with nitric acid, should not become more than slightly opalescent (limit of chloride).

When exposed to a red heat, it is decomposed, and should leave a residue of metallic gold equal to 32.43 per cent.

CACAO PREPARATA.

COCOA—CACAO.

A powder prepared from the roasted, cured kernels of the ripe seeds of *Theobroma Cacao* Linné, or of other species of *Theobroma* (Fam. *Sterculiaceae*) deprived of a portion of their fat.

A brownish powder having a chocolate-like odor and taste, free from sweetness.

When extracted with cold water, cocoa should yield not less than 14 per cent nor more than 22 per cent of soluble matter.

When extracted with ether, cocoa should yield not less than 18 per cent of fat, and the fatty residue should not have a spicy odor or taste.

The residue, after extraction with ether, when examined under the microscope should not show more than traces of cacao shells, and should show no foreign starch granules or other foreign substances.

Upon incineration Cocoa should yield not less than 3.5 per cent nor more than 8 per cent of ash, which should not have a distinctly reddish color.

CACTUS GRANDIFLORUS.

CACTUS GRANDIFLORUS. CEREUS GRANDIFLORUS.

Synonyms: Night-blooming Cereus; Queen of a Single Night; Large Flowered Cactus; Sweet Scented Cactus; Vanilla Cactus.

The fresh, succulent stems of the wild

growing *Cactus grandiflorus* Linné (*Cereus grandiflorus* Miller), Fam. *Cactaceae*, a green climber indigenous to the West Indies and Mexico. *Cactus grandiflorus* as collected from the growing plant is usually preserved in alcohol and in this form the medicinal article commonly enters the trade. The amount of added alcohol should be stated on the label. *Cactus* cultivated in houses should not be used medicinally.

Stems in pieces of varying length, about 1.5 to 2 cm. in diameter cylindrical, but with 5 to 7 angles, along which at intervals of about 2 cm. there are small tufts of 6 to 8 spines about 2mm. long, and at irregular intervals of about 5 to 15 cm. there is a branched root.

The transverse section presents a central woody ring about 3mm. in diameter. The remainder of the stem presents a spongy parenchyma with numerous large crystals or "sphaeraphides" therein.

The fresh stems are very succulent, and lose upon drying about 95 per cent of their weight.

When bruised *Cactus Grandiflorus* has a strong, herby odor, an insipid, acidulous taste and is mucilaginous to the touch.

The sliced stems color alcohol green.

The fresh juice has an acid reaction.

CALCH DIOXIDUM.

CALCIUM DIOXIDE.

(Calcium Peroxide)

A partly hydrated form of calcium dioxide (CaO_2), containing not less than 60 per cent of pure calcium dioxide when estimated by the method given below.

A grayish-white or yellowish-white powder, slightly soluble in water and readily soluble in diluted acids, except sulphuric, with the formation of hydrogen dioxide.

A solution of 0.1 Gm. of calcium dioxide in 5Cc. of diluted hydrochloric acid, to which 0.1 Gm. of ammonium chloride has been added and then rendered slightly alkaline with ammonia water, yields a dense white precipitate with ammonium oxalate T. S. (presence of *calcium*).

QUANTITATIVE ESTIMATION OF CALCIUM DIOXIDE.

Agitate about 0.2 Gm. of calcium dioxide with 25 Cc. of water and dissolve the substance by the addition of 25 Cc. of diluted hydrochloric acid (1 in 5). Then add grad-

ually from a burette, tenth-normal potassium permanganate V. S. until a permanent color remains after agitation. Multiply the number of Cc. of tenth-normal potassium permanganate V. S. consumed, by 0.003578, and divide this product by the weight of calcium peroxide taken; the result multiplied by 100 represents the percentage of pure calcium peroxide present.

CALCH LACTAS.

CALCIUM LACTATÆ.



It should contain not less than 98 per cent of pure calcium lactate.

White granular masses or a white crystalline powder, odorless, with a slight chalky taste.

Soluble in 10 parts of cold water when freshly prepared. Freely soluble in alcohol. The solubility is lessened with age.

When heated to 100° C. the salt loses all its water of crystallization; on ignition at a red heat it decomposes and a residue of calcium oxide remains.

An aqueous solution of the salt is neutral to litmus paper.

The aqueous solution of the salt (1 in 20) yields with ammonium oxalate T. S. a white precipitate, insoluble in acetic acid but soluble in hydrochloric acid.

On adding potassium permanganate to a mixture of calcium lactate and sulphuric acid and gently heating, the odor of aldehyde will become perceptible.

If one gramme of calcium lactate be added to 20 c. c. of water a clear, colorless solution should result. (Absence of insoluble impurities).

The aqueous solution (1 in 20) slightly acidulated with hydrochloric acid should not repond to the U. S. P. time limit test for heavy metals.

The aqueous solution (1 in 20) should not be rendered more than faintly turbid by barium chloride T. S. (limit of Sulphate) and not more than faintly turbid by the addition of silver nitrate T. S. (limit of chloride).

On gently warming Calcium lactate with a little sulphuric acid no odor of rancid fat should be noticeable. (absence of butyric and other fatty acids).

If from 10 c. c. of the aqueous solution (1 in 20) the calcium be completely precipitated by ammonium oxalate T. S. the filtrate should, on evaporation and ignition, leave not

more than 0.0025 gramme residue (limit of magnesium).

(To be continued.)

COMMITTEE ON NATIONAL FORMULARY.

The following is the third installment of some of the new formulas that have been suggested for inclusion in the forthcoming edition of the National Formulary. The Committee is desirous of having them thoroughly tried by pharmacists in different sections of the country so as to avoid as much as possible unfavorable comment after the final publication of the book. Comments and criticisms based on practical experiences will be welcome. All communications should be addressed to the Chairman of the Committee,

PROF. C. LEWIS DIEHL,
932 Cherokee Road,
Louisville, Ky.,

who will submit the comments to the Subcommittee having the matter in charge.

MISTURA FERRI SALICYLATA.

Salicylated Mixture of Iron. Cohen's Salicylated Iron Mixture.

Sodium Salicylate	125	Gm.
Tincture of Ferric Chloride.	125	Cc.
Ammonium Carbonate	6.5	Gm.
Citric Acid	14	Gm.
Oil of Betula.....	4	Cc.
Glycerin	175	Cc.
Distilled Water, a sufficient quantity to make.....	1000	Cc.

Dissolve the Citric Acid in 200 Cc. Distilled Water, add the Ammonium Carbonate and then dissolve the Sodium Salicylate in this solution, add the Tincture of Ferric Chloride, Glycerin and the Oil of Betula, mix and then add sufficient Distilled Water to make 1000 Cc. and filter.

GARGARISMA GUAIACI COMPOSITA.

Compound Gargle of Guaiac. Cohen's Guaiac Gargle.

Ammoniated Tincture of Guaiac	100	Cc.
Compound Tincture of Cin- chona	100	Cc.
Clarified Honey	200	Cc.
Potassium Chlorate	40	Gm.
Oil of Peppermint.....	2	Cc.
Distilled Water, a sufficient quantity to make.....	1000	Cc.

Place the Clarified Honey in a bottle graduated to 1000 Cc., then gradually add the mixture of the Oil of Peppermint and the Tincture, shaking after each addition. Then add in divided portions with continuous shaking the solution of the Potassium Chlorate in 500 Cc. of Warm Distilled Water, then add sufficient Distilled Water to make the mixture measure 1000 Cc.

NEBULA AROMATICA.

Cohen's Aromatic Oil Spray. Aromatol.	
Phenol .....	.2 Gm.
Menthol .....	.2 Gm.
Thymol .....	.1 Gm.
Camphor .....	.3 Gm.
Benzoic Acid .....	.3 Gm.
Eucalyptol .....	.2 Cc.
Oil of Cinnamon.....	.2 Cc.
Oil of Cloves.....	.2 Cc.
Oil of Betula.....	.5 Cc.
Liquid Petrolatum, a sufficient quantity to make.....	100 Cc.

Dissolve the aromatics in the Liquid Petrolatum and filter.

NEBULA EUCALYPTOLIS.

Eucalyptol Spray.

Eucalyptol	5 Cc.
Liquid Petrolatum	95 Cc.
Mix them.	

NEBULA MENTHOLIS.

Menthol Spray.

Menthol	2 Gm.
Liquid Petrolatum, a sufficient quantity to make.....	100 Cc.

Dissolve the Menthol in the Liquid Petrolatum by agitation in a stoppered bottle.

NEBULA MENTHOLIS COMPOSITA.

Compound Menthol Spray.

Menthol	1. Gm.
Camphor	1. Gm.
Oil of Betula.....	.5 Cc.
Eucalyptol .....	.2 Cc.
Oil of Cinnamon.....	.2 Cc.
Liquid Petrolatum, a sufficient quantity to make.....	100 Cc.

Agitate the ingredients in a stoppered bottle until solution is obtained, then filter, if necessary.

NEBULA THYMOLIS.

Thymol	1 Gm.
Liquid Petrolatum, a sufficient quantity to make.....	100 Cc.
Mix them.	

INUNCTUM MENTHOLIS.

Menthol Inunction.

Menthol	5 Gm.
Hydrous Wool Fat.....	95 Gm.

Rub up the Menthol with a portion of the Hydrous Wool Fat till a perfectly smooth mixture is obtained, then add the remainder and incorporate thoroughly.

INUNCTUM MENTHOLIS COMPOSITUM.

Compound Menthol Inunction.

Menthol	5 Gm.
Methyl Salicylate	10 Gm.
Wool Fat	85 Gm.

Dissolve the Menthol in the Methyl Salicylate and thoroughly incorporate the mixture with the Wool Fat.

Compound Menthol Inunction should be kept in collapsible metal tubes, well sealed or in small tightly-stoppered wide-mouth bottles.

PASTA RESORCINOLIS FORTIOR, LASSAR.

Lassar's Stronger Resorcin Paste.

Resorcinol	20 Gm.
Zinc Oxide	20 Gm.
Starch	20 Gm.
Liquid Petrolatum	40 Gm.

Thoroughly triturate the Zinc Oxide with sufficient of the Liquid Petrolatum to make a thin smooth paste. Reduce the Resorcin to a very fine powder, mix it with the Starch and add the mixture to the Zinc Oxide paste and triturate till a uniform smooth mixture is obtained, gradually adding the remainder of the Liquid Petrolatum and thoroughly incorporating the mixture.

MEL ROSAE CUM BORACIS.

Honey of Rose with Borax.

Borax in fine powder.....	10 Gm.
Glycerin	5 Gm.
Honey of Rose.....	85 Gm.

Mix the Borax with the Glycerin, then add the Honey of Rose and stir till dissolved.

MEL SODII BORATIS.

Mel Boracis. Honey and Borax.

Borax, in fine powder.....	10 Gm.
Glycerin	5 Gm.
Clarified Honey	85 Gm.

Mix the Borax with the Glycerin, then add the Honey and stir till dissolved.

THE DRUGGIST AND THE MEDICAL ALMANAC.

"Soon will the festive almanac men of the nostrum makers begin to flood the innocent and defenseless public with their nauseating booklets, each bearing on its back cover the printed endorsement of their truck by the retail druggist. And the pity of it is that many druggists will 'fall for it,' as the expressive slang phrase is. But there is some consolation in the fact that an increasing number of druggists have seen a light, and have seen that the more intelligent of their customers have seen the same light, and are no longer advertising to the public that they are partners with the nostrum people in their gentle little game of gulling the unsophisticated. The time is not yet ripe for the druggist to refuse entirely to handle nostrums, but the time is at hand, and has been at hand for some years, when it pays druggists to let it be known that they do not endorse false statements published broadcast by the nostrum makersr."—*Druggists' Circular*.

Editorial Notes and Announcements

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All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.



THE HYDRASTIS SITUATION.

The timeliness of the paper on Hydrastis Cultivation by Prof. John Uri Lloyd is emphasized by the following item clipped from a recent market report:

"Golden Seal Root—Continues to advance, the market displaying great firmness, \$6 @ \$6.25 per pound for whole root, and \$6.25 @ \$6.50 for powdered being asked. It is reported from a leading quarter that a canvass of three counties in West Virginia disclosed but one small patch of the root."—*Pharm. Era*.

Prof. Lloyd's long study of the subject enables him to speak as one having authority, and not as the scribes who have only second-hand information. His paper presents several

new and interesting items regarding the cultivation of this highly important drug that have not been previously published.



EX-POST-FACTO OBJECTION TO LEGISLATION.

In the past, members of the drug fraternity have been famous for filing their objections to proposed legislation or executive action after these had become established facts, when objections were useless.

In this issue appears a proposed ruling of the U. S. Board of Food and Drugs Inspection regarding the importation, transportation and sale of certain narcotic drugs and their preparations.

The proposed ruling is far-reaching, and in some respects perhaps merits the adjective, drastic. If any legitimate use of these drugs will be interfered with by the operation of the ruling, now is the time to present the evidence.

The same advice will apply in regard to the standards for certain National Formulary drugs and chemicals proposed by the Committee on Unofficial Standards. Objections to these will be useless after they have been incorporated in the National Formulary and have become a part of the law.



WHEN IS AN APOTHECARY NOT AN APOTHECARY?

Some light—or the reverse—is thrown upon this subject by a recent decision of the U. S. Circuit Court of Appeals in the cases of H. K. Mulford & Co., Smith, Kline & French, and Hance Brothers & White, plaintiffs in error, vs. United States, defendant in error. Each of the plaintiffs in error sought to have set aside a judgment of the District Court by which they have been held liable to the payment of \$200.00 revenue tax as rectifiers of spirits, because of the recovery of alcohol from the marc left in the preparation of tinctures of vanilla, ginger, etc. The Circuit Court affirmed the judgment of the District Court and denied the relief asked for. The portions of the law construed by the Court are as follows.

"Rectifiers of distilled spirits shall pay \$200.00. Every person who rectifies, purifies or refines distilled spirits or wine by any other process than by original and continuous distillation from mash, wort or wash, through

continuous closed vessels and pipes until the manufacture thereof is complete * * * shall be regarded as a rectifier, and as being engaged in the business of rectifying."

Also the exempting provision that no tax shall be imposed "upon apothecaries as to wines and spirituous liquors which they use exclusively in the preparation or making up of medicines."

The learned judge says: "The exemption does not embrace one who recovers alcohol from a substance with which it has been previously mixed. Such a person is not one of the apothecaries referred to in the exempting clause." And again: "The recovery of spirits from the dregs of vanilla bean or ginger root is not the business of an apothecary; the compounding of medicines is:"

In the light of the learned judge's dictum, the Professors of Pharmacy have been making a mess of it; for ever since colleges of pharmacy have existed they have been teaching their students that the recovery of alcohol from mares and percolates was an essential and important part of the apothecary's business. Even the esteemed U. S. P., which, by act of Congress, is presumably a part of the law of the land, makes the same great blunder, since it frequently directs the humble apothecary to "recover" or "distill off" the alcohol from percolates, etc., and if he should fail to do so, he should be liable for the sale of adulterated drugs. Evidently he is to be fined if he does not, and fined if he does.

Of course, what the Court says is law, but it is somewhat disconcerting to discover that a judge who has never studied pharmacy, after listening to the arguments of a couple of lawyers whose knowledge of the subject was coextensive with his own, should know more about what constitutes the proper business of an apothecary than those who have devoted their lives to the teaching of the subject.



HONORS TO PROF. CHARLES CASPARI.

The resolutions of appreciation, ordered by the Council to be presented to the retiring General Secretary, Prof. Charles Caspari, were presented to him by the chairman of the committee, Professor Remington, at the Hotel Stafford, Baltimore, on the evening of December 26, 1911. The occasion was informal. John F. Hancock, our veteran ex-President, in the chair. The resolutions,

beautifully engrossed, bound in blue leather with white superscription, represented the colors of his college. The recipient was then thoroughly surprised by the presentation of a gold watch and jeweled fob, the gift of twenty appreciative friends, whose names were obscured by the presenter under the seasonable title of "Kris-Kringle," and his son, Charles E. Caspari, was present and responded appropriately. To say that Professor Caspari was overwhelmed by these marks of appreciation of his seventeen years devoted service as General Secretary does not fully describe the situation. The happy event was thoroughly enjoyed by all the participants.

J. P. R.

Communications and Correspondence

All communications must be signed by their
Authors

CHEER FROM PHILADELPHIA.

In January, 1912, the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION was published for the first time: in some such prosaic fashion, History will in the dim future record the events which we are celebrating today. There will be no expression in this brief record of the long debates at the annual meetings, the "ifs" and "ands," the "buts" and "hows," the "pros" and "cons," and even J. W. England's thorough and illuminating reports to the Council, which have proved so convincing to the Association, might probably escape the future historian's eye and pen. There is, therefore, a reason while the facts are fresh in our minds to remind the future great recorder of "events pharmaceutical" that the founding of the JOURNAL was not accomplished without much labor and travail on the part of those who have now brought the venture to the point, of the issue of the first number.

The writer does not include himself among those who have borne the burden and heat of the day, for a word of counsel or advice now and then was all that he could give. What is needed now is the enthusiastic and persistent financial support of our members and non-members. Our editor is able and more than willing to give his best services. Congratu-

lations are in order and the editorial office will soon be flooded with telegrams and letters.

May the new JOURNAL enter upon its career with hope and confidence. May its success grow from year to year as it will prove more and more worthy to represent American Pharmacy and the Association which we love to honor.

JOSEPH P. REMINGTON.

<>

AN APPRECIATION OF DR. CHARLES E. DOHME.

DALLAS, TEX., December 13, 1911.

DEAR DR. BEAL—The news of the death of Mr. Charles E. Dohme did not come to me until today.

Mr. Dohme was a grand character, a lovable man who in every walk of his life was a worthy example for those who desire to win the respect of their neighbors and co-workers. He had self-reliance and linked it with concentration to achieve success, not in the narrow meaning which some would give the term, but that broader and better significance which includes service to fellow man. He appreciated the good and beautiful, he was always kind, courteous and generous; in his judgment of others he was just and considerate. He loved truth in all things and exemplified his attachment to that greatest above all attributes in business as well as social activities.

One of the "grand" men in pharmacy has gone to his reward and we have profited because we have known him and shared in his work and its results. We are saddened because of his demise, but are glad to remember that flowers of friendship were given him while he lived, for pharmacists and friends were glad to evidence their appreciation of his worth, a consideration which always found response with him, for he was deeply appreciative.

Others are better qualified and more capable to speak of Mr. Dohme's abilities and accomplishments, but the benefits the writer has shared through his good cheer and advice, his friendship and example, prompt these few words, however feebly and poorly they may be expressed, in the hope that they may be indicative of the esteem for the departed, which so many share.

E. G. EBERLE.

PROPOSED RULING OF THE BOARD OF FOOD AND DRUGS INSPECTION

Regulating the Importation and Sale of Opium, Morphin, Cocain, Coca, Their Derivatives and Preparations.

The indiscriminate and promiscuous use of opium, cocain, their derivatives and preparations is recognized as a great menace to the public health. The administration of these agents, however, by skillful hands contributes much to the relief of pain and suffering. Section 11 of the Food and Drugs Act, June 30, 1906, regulates the importation of any drug which is adulterated or misbranded "or is otherwise dangerous to the health of the people of the United States, or is of a kind forbidden entry into, or forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported." Many foreign countries restrict the sale and use of these agents rigidly. Most of the states have laws regulating the sale and use of these drugs more or less within their borders, but interstate transactions cannot be reached with the result that the states' efforts to stamp out drug addictions are ineffective. This regulation simply extends the system in vogue in most states. For the purpose of cooperation with the states, and in order that these drugs may be available for legitimate purposes and that their illegitimate use be curtailed as much as possible, it is directed that for every importation of cocain, whether purified or otherwise, its salts or derivatives or preparations thereof, or coca, or any preparation or derivative thereof, shall be filed with the chief or acting chief of the appropriate food and drug inspection laboratory of the Bureau of Chemistry, U. S. Department of Agriculture, at the time of entry, a declaration of the owner or ultimate consignee of the merchandise, in the following form:

IMPORTERS' DECLARATION.

(a)

I.....(name of representative), of the(name of firm or corporation), manufacturing chemist or dealer in drugs, do solemnly and truthfully declare that the....(number of pounds or ounces) in..... (number) packages or cases or containers of cocain, its derivatives or preparations; or coca, or derivatives or preparations thereof, more particularly described in the invoice and entry herewith submitted, and imported at(port), per.....(steamship), on

the..... day of....., are expressly imported and are intended to be used by..... (name or firm or coporation), in the preparation of medicines, or are to be sold by..... (name of firm or corporation), for medicinal purposes or for manufacturing medicinal agents, and such cocain, or coca, or their derivatives or preparations are not intended to be used in such manner as to render them in any way "dangerous to the health of the people of the United State."

(b) The importation of opium or its preparations and derivatives is prohibited, except for medicinal purposes, by Act of Congress entitled "An Act to Prohibit the Importation and Use of Opium for other than Medicinal Purposes. Approved February 9, 1909." Under this act the Secretary of the Treasury prescribed a regulation governing the filing of declarations by importers of opium, its derivatives and preparations, to the effect that such products will not be imported for other than medicinal purposes. This regulation shall govern the importation of these products.

(c) For the purpose of complying with the provisions of the Food and Drugs Act, each and every subsequent purchaser or receiver of such imported opium, morphin, cocain, coca, their derivatives or preparations thereof, shall be required, except as provided below, to file the following form of declaration:

DOMESTIC DECLARATION.

I..... (name of individual or representative) of the..... (name of individual firm or corporation), manufacturing chemist, or wholesaler or retailer or practitioner of medicine, or dentist, or veterinarian, hospital, sanitarium, or any other dealer in or purchaser of drugs, do solemnly and truthfully declare that the..... (number of pounds or ounces) in..... (number) cases or packages, of opium, morphin, cocain, coca, their derivatives or preparations thereof, more fully described by the invoice or bill of lading or bill of sale, purchased from..... (name of individual, firm or corporation), by..... (name of individual, firm or corporation), the..... day of..... are expressly purchased and intended to be used by..... (name of individual, firm or corporation), for treating disease, or in the preparation of medicines or the manufacture of alkaloids or salts of alkaloids, and such preparations or alkaloids, or salts of alkaloids, if sold or given away, are to be sold or dis-

posed of or given away by said firm for medicinal purposes only, and such opium, morphin, cocain, coca, their derivatives or preparations thereof, are not intended for any other but medicinal purposes.

(d) Provided, however, that this declaration is waived in case the purchase is made upon the original written order or prescription of a legally authorized practitioner of medicine, dentistry, or veterinary medicine, which order or prescription shall be dated and shall contain the name of the person for whom prescribed, or if ordered by a practitioner of veterinary medicine, shall state the kind of animal for which ordered or prescribed, and shall be signed by the person giving the order or prescription. Such order or prescription shall be retained on file for a period of five years by the person, firm or corporation who compounds or dispenses the article ordered or prescribed, and it shall not be compounded or dispensed after the first time, except upon the written order of the original prescriber. Should any evidence appear that such prescriber or practitioner is promoting or fostering in any way a drug habit, the privilege of filling his prescriptions shall be withdrawn. Provided further that this declaration shall be waived in the case of purchase made by properly accredited federal or state officials, or purchases made purely for scientific work.

(e) All declarations, prescriptions, orders, and transactions of each and every dealer in these commodities shall be retained on file for a period of five years in the office of the consignor or vendor or compounder or dispenser in separate books or files which shall at all times be open to inspection by properly accredited government and state officials.

(f) The terms "for medicinal purposes only" and "for treating disease" shall mean the use of opium, or morphin, or coca, or cocain, or preparations or derivatives thereof for the treatment, mitigation, or prevention of disease of man or other animals. The simple use of any of these products for inducing sleep in infants or similar purposes is not properly called "for medicinal purposes" or "for treating disease."

(g) In order that the public may be advised of the poisonous nature of any and all of the above drugs, each and every package containing same shall bear in conspicuous manner on the label or labels of the package, including any wrapper or cover, the word "poison" in uncondensed gothic type, and the skull and

crossbones, all printed in red on a white background or white on a red background.

(h) Cocain, manufactured, crude or otherwise, its salts, derivatives, or preparations thereof, coca, or any derivative or preparation thereof, imported for medicinal purposes, may be entered for immediate transportation in bond, or consumption, or for warehousing at the following named ports and no others: Baltimore, Boston, Buffalo, Chicago, Detroit, Honolulu, New Orleans, New York, Philadelphia, San Francisco, San Juan, Seattle, and St. Louis. Delivery will be made only when the chief or acting chief of the port laboratory is satisfied that the importations are for medicinal purposes only.

(i) The manner of entering opium, its derivatives or preparations and the minimum size packages containing same is provided for by Treasury Decision No. 29,657. The entire number of packages of cocain, purified or otherwise, coca, or any derivative or preparation of such substances offered for importation shall be ordered into the appraiser's warehouse for examination, and no delivery shall be made of cocain or salts of cocain, either singly or assorted in quantities or packages containing less than twenty-five ounces; nor of coca or any preparation made from same in quantities or packages containing less than one hundred pounds, nor of crude cocain or any other antecedent used in the manufacture of cocain or salts of cocain in quantities or packages containing less than ten pounds, and then only upon the report of the Bureau of Chemistry as to the quality, purity, and fitness for medicinal or manufacturing purposes, and upon the compliance with all laws and regulations governing importations of drugs and medicines.

(j) The following are the principal products affected by this regulation: Opium, codein, morphin, heroin, dionin, peronin, diacetyl morphin, coca, cocain, their salts and derivatives and any preparation derived from or containing any of the before mentioned bodies.

(k) In order that there may be readily available a complete record of all imported drugs, subject to this regulation, and disposition and uses to which they are put, all importers, jobbers, wholesalers, retailers, compounders, dispensers, or other dealers shall report to the Department of Agriculture at Washington, D. C., on the first of January of each year the amounts on hand, the amounts

imported, purchased or received during the year and the disposition and use made thereof.

(1) It is suggested that the report be made in the following form:

	Amt's on hand, Jan. 1, 1912.	Amt's on hand, Jan. 1, 1913.	Amt. imported, purchased or received.	Amt. sold or disposed of during year.
Opium				
Morphine and its salts...				
Cocaine and its salts...				
Coca				
Heroin and its salts...				
Codein and its salts...				
Diacetyl mor- phine and its salts...				
Other prod- ucts af- fected				
			Used for manuf'g dispensing etc., purposes.	How much manuf'd of each
			Amt. used.	For manuf'g what?
Opium				
Morphine and its salts...				
Cocaine and its salts...				
Coca				
Heroin and its salts...				
Codein and its salts...				
Diacetyl mor- phine and its salts...				
Other prod- ucts af- fected				

<>

THE REPLY BY GEO. M. BERINGER

December 22, 1911.

Bureau of Food and Drug Inspection, United States Department of Agriculture, Washington, D. C.:

GENTLEMEN—Your favor of December 14th with enclosure, copy of "Tentative Food Inspection Decision Regulating the Importation and Sale of Opium, Morphin, Cocain, Coca, their Derivatives and Preparations," was duly received. I have given this draft careful consideration, and in accordance with your request, I will venture to express my opinion and criticism thereon.

The object that you have in view to suppress the indiscriminate and promiscuous use of the narcotic drugs mentioned is one that meets with my hearty approval. Section 11 of the Food and Drugs Act is cited as the authority for such decision and regulation

From my understanding of this section of the Food and Drugs Act, June 20, 1906, I fail to see wherein it can be broadened to cover state or intra-state commerce. It appears to me to specifically apply to foods and drugs which are *being imported* or *are offered for import* into the United States and provides a method for the decision of the admission of foods and drugs of proper quality and for forbidding entry to those that are adulterated or misbranded or otherwise dangerous to the health of the people of the United States.

Under this section, in my opinion, a declaration of the importer is fully justified and the form suggested under paragraph (a) may prove satisfactory.

Paragraph (b) relates to the enforcement of the act of February 9, 1909, prohibiting importation and use of opium for other than medicinal purposes and appears to be in harmony with that act.

Paragraph (c), providing for domestic declaration, does not appeal to me as coming under the provisions of either section No. 11 of the Food and Drugs Act or of the special act of February 9, 1909. As much as such regulation may be desired I do not believe that it is now warranted by the existing law. Further, the form proposed covers the purchase of any of the prescribed drugs by an individual, firm or corporation either as manufacturing chemist, wholesaler, retailer, practitioner of medicine, dentistry or veterinarian as a sanatorium or any other dealer in or purchaser of drugs. This aims to control not only inter-state commerce in these drugs, but likewise intra-state commerce in these drugs. I doubt if the latter control comes within the jurisdiction of a national government department.

Section (d) likewise covers such purely local business as well as inter-state dealings in prescription sales of these drugs. Here again I doubt if it is within the province of the National Government to enforce such regulations which appear to be properly a part of the police powers of each state. In many of the states the anti-narcotic laws already passed practically provide for such regulation.

The remarks on paragraph (d) likewise apply to paragraph (e).

In paragraph (f) I understand, of course, that your aim is to prevent the sale of infant cordials and anodynes containing Opium or Morphine. In doing this, however, the word-

ing would conflict with the sales of such household remedies as Paregoric and Brown Mixture which are not infrequently administered to infants. The remarks as to the jurisdiction of your department under paragraphs (d) and (e) likewise apply to this paragraph.

Paragraph (g) relates to the proper labeling of such poisonous drugs. This is provided for in many of the state laws covering the sales of such remedies which provide for the skull and crossbones poison label in red, but, as a rule, exempt from this provision preparations of Opium containing not more than two grains per fluid ounce. This likewise suggests a conflict with the regulations of the state laws and your proposed regulation by inspection decision, and here again the question of jurisdiction comes up.

Paragraph (h) being a regulation relating to the customs should be passed upon by the Treasury Department.

Paragraph (i) relates to importations and their proper entering. This is a matter which must be left to the Treasury Department or the combined Treasury and Agriculture Departments for decision as it is purely a matter of customs regulation.

Paragraph (k), providing for a complete record to be kept by all importers, jobbers, wholesalers, retailers, compounders, dispensers or other dealers and a report from each of these to the Department of Agriculture on the first of January of each year is, in my opinion, impracticable, even if it were within the proper bounds of a decision of the Board of Food and Drug Inspection or properly considered as covered by the Food and Drugs Act of June 30, 1906. It certainly would not be practicable for each physician and each retail druggist of the country to keep a record of all of the small amounts of Opium, Morphine, Coca, etc., dispensed on the prescription work during a year. To require that every time Laudanum, Paregoric and Dover's Powder are made that a record should be kept of the amounts of Opium consumed therein would possibly be no great hardship, but the regulation that every time a prescription calling for a few grains of Opium in pills, suppositories or ointment is dispensed, that a record must be kept and reported is impracticable. Morphine is one of the most commonly prescribed medicaments usually in comparatively small quantities, yet in the aggregate enormous amounts are used

during the year. To keep track of such small dispensings is not practicable.

I appreciate the fact that in paragraph (d) exemption of the declaration is waived in case the purchase is made upon the original written order or prescription of a legally authorized practitioner of medicine, dentistry or veterinarian medicine, and possibly I have erred in construing that a record would have to be kept of such dispensings. However, the wording of paragraph (k) covers retailers, compounders and dispensers, and would seem to imply the correctness of such a construction.

I am compelled to differ from the regulations as outlined not because I am not in sympathy with the object desired to be attained, but because I believe there is no provision or authority contained in the present law extending the jurisdiction of the Bureau of Chemistry in the matter contemplated by this proposed inspection decision. If there is need for a national law that shall take out of the jurisdiction of the states the police regulation relating to the sale and use of narcotic drugs, then it should be made a special enactment of the National Government so that its legality would be above suspicion.

If such legislation is called for, then an act should be carefully prepared so as to not unnecessarily interfere with legitimate sale and proper use of medicines. Those who are acquainted with the conditions existing in the practice of medicine and pharmacy and the conduction of the drug business should be consulted so that no unnecessary interference with business nor hardship will be occasioned in the proper discharge of their vocation.

Yours respectfully,

GEORGE M. BERINGER.

THE NEEDLESSNESS OF WORRY.

"There are two reasons why man should not worry, either one of which must operate in every instance. First, because he *cannot* prevent the results he fears. Second, because he *can* prevent them. If he be powerless to avert the blow, he needs perfect mental concentration to meet it bravely, to lighten its force, to get what salvage he can from the wreck, to sustain his strength at this time when he must plan a new future. If he *can* prevent the evil he fears, then he has no need to worry, for he would by so doing be dissipating energy in his very hour of need."—*William George Jordan.*

Council Business

COUNCIL LETTER NO. 7.

PHILADELPHIA, PA., December 11, 1911.

To the Members of the Council:

Motions No. 16 (Date of Salary of General Secretary and Editor of the JOURNAL), and No. 17 (Election of Members; applicants Nos. 42 to 81 inclusive) have each received a majority of affirmative votes.

The Denver Branch has elected John A. Martin, of Denver, as representative to the Council to succeed A. W. Clark, whose term expires this year.

Motion No. 18 (Election of Charles M. Ford Local Secretary for 1912). Moved by J. W. England, seconded by J. H. Beal, that Charles M. Ford, of Denver, Colo., be elected Local Secretary in place of E. L. Scholtz, resigned.

It is very important that the Local Secretary be elected at an early date, and you are therefore requested to send in your vote at once.

Charles Emile Dohme, of Baltimore, Md., died on December 7, 1911. Mr. Dohme joined the American Pharmaceutical Association in 1863, almost fifty years ago. He has been a most loyal member, was President of the Association in 1898-99, and has rendered important services to American Pharmacy, especially as Chairman of the Board of Trustees of the U. S. Pharmacopoeial Convention from October, 1901, to May, 1910.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d St.

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COUNCIL LETTER No. 8.

PHILADELPHIA, PA., Dec. 27, 1911.

To the Members of the Council:

Motion No. 18 (Election of Charles M. Ford Local Secretary for 1912), has received a majority of affirmative votes.

The following communication has been received from Chairman J. A. Koch of the Finance Committee:

"As the fiscal year of the Association has been changed to cover the period from January 1 to December 31, all the present appropriations will lapse on the 31st. The Finance Committee, therefore, presents to

the Council the enclosed budget of appropriations for the year 1912."

Proposed budget of appropriations for the year 1912:

Salaries	\$5,500 00
Journal	3,500 00
Proceedings	1,500 00
Clerical expenses, Secretary's office	1,000 00
Printing, stationery and postage...	500 00
Miscellaneous expenses	500 00
Stenographers	200 00
Badges and bars.....	75 00
Journals for Reporter.....	35 00
Committee on Membership	50 00
Traveling expenses	200 00
Premium on treasurer's bond.....	37 50
Insurance	50 00
Certificates	50 00
Section on Scientific Papers.....	25 00
Section on Education and Legislation	25 00
Section on Practical Pharmacy....	25 00
Section on Historical Pharmacy....	25 00
Committee on Unofficial Standards	150 00
National Formulary general expenses	1,000 00
Reappropriation of balance in National Formulary Experimental fund	728 62
Reappropriation of unexpended portion of Special Committee on Membership appropriation.....	84 81
Total	\$15,285 93

Motion No. 19. (Approval of budget of appropriations for 1912.

Do you approve of proposed budget of appropriations for 1912 as above submitted?

J. W. ENGLAND, *Secretary of Council.*

FADS AND PHILOSOPHIES.

"Everything that is great in life is the product of slow growth; the newer, and greater, and higher, and nobler the work, the slower is its growth, the surer is its lasting success. Mushrooms attain their full power in a night; oaks require decades. A fad lives its life in a few weeks; a philosophy lives through generations and centuries. If you are sure you are right, do not let the voice of the world, or of friends, or of family swerve you for a moment from your purpose. Accept slow growth if it must be slow, and know the results *must* come, as you would accept the long, lonely hours of the night,—with absolute assurance that the heavy-led moments *must* bring the morning."—*William George Jordan.*

Obituaries and Memorials

CHARLES E. DOHME.

1843-1911.

After an illness of four years, Charles E. Dohme died at his home in Baltimore, on December 7, 1911.

Charles Emile Dohme was born at Obernkirchen, Schaumburg, Germany, on March 12, 1843, and came to this country with his parents in 1851. He attended Knapp's Institute in Baltimore, and subsequently entered the drug store of A. P. Sharp, at the southwest corner of Howard and Pratt Streets, Baltimore, as an apprentice, serving the full term of four years.

In the choice of vocation, Mr. Dohme was largely influenced by his older brother, the late Louis Dohme, who had obtained a position in the store of Mr. Sharp some years before. Like Louis Dohme, Charles matriculated at the Maryland College of Pharmacy and took his degree. He then obtained a position as clerk in the pharmacy of George L. Kidwell & Son, of Georgetown, D. C., and subsequently went with Andrews & Thompson, of Baltimore, with whom he remained until 1866, when he was admitted as a partner in the firm of Sharp & Dohme, being placed in charge of the manufacturing department. There his influence soon made itself felt in a signal manner. A large part of the apparatus needed in the various processes had to be devised, and in this work he developed an extraordinary resourcefulness. His practical mind enabled him to overcome one mechanical difficulty after another, and to devise a long series of appliances which not only facilitated operations, but produced a previously unattained perfection of products.

Mr. Dohme took a deep interest in the scientific and ethical sides of pharmacy. He identified himself closely with the Maryland College of Pharmacy. He supported it freely and gave encouragement in other forms. He used his influence to bring about a raising of standards, and encouraged young men who gave special promise. Besides, he sought to establish cordial personal relations between the faculty, the members of the College and the students, and on numerous occasions gave receptions and entertainments at his home

which were notable for their enjoyable character. In 1896 he was elected president of the College, serving one year.

He became a member of the American Pharmaceutical Association in 1863. In 1889-90 he held the position of local secretary; in 1890-91 he was second vice-president; in 1895 he was elected first vice-president, and in 1898 he was chosen president. For twelve years he was a member of the Council, and in 1900 was elected a member of the Board of Trustees of the United States Pharmacopœial Convention. In 1901, Mr. Dohme became chairman of the Board, and had a share in the work of bringing out the Spanish translation of the Pharmacopœia. He was a member of the Maryland Pharmaceutical Association and contributed numerous papers on pharmaceutical processes to the proceedings of various associations.

Mr. Dohme's sociability was strikingly shown by the fact that he became an active member of the Baltimore Drug Trade Bowling Club some ten years ago. He belonged also to the Germania Club, the leading German club of Baltimore. Besides attending many meetings of pharmaceutical associations, he traveled extensively in this country and abroad, and his home is filled with pictures of the places he had visited. He was a great reader and, notwithstanding his active professional and business life, possessed an intimate acquaintance with the thousands of books in his private library. He was a liberal patron of the arts and rarely missed a performance of grand opera or a high-class concert. His love of music led him to join the Mount Vernon Methodist Episcopal Church choir, and he was one of the organizers of the old Oratorio Society, in whose renditions he took an active part.

The year 1866 was a momentous one in the life of Mr. Dohme, for not only was he admitted to the firm in that year, but he also married, his bride being Miss Ida Schulz, of Baltimore. The union was blessed with three daughters and a son, the latter being Dr. A. R. L. Dohme, and the former Miss Adele Dohme, Mrs. Hans Von Marees, and Mrs. Charles E. Holzhauer, of Newark, N. J.

The funeral took place from his home on December 9, 1911. Rev. Richard W. Mogue, pastor of the Protestant Episcopal Church of the Ascension, conducted the services.

Eight employes of the firm served as active

pallbearers, while the following acted as honorary pallbearers:

Henry T. Hilken, Charles Caspari, Jr., John F. Hancock, D. M. R. Culbreth, R. M. Waring, J. C. Muth, H. B. Gilpin, G. F. Bailey, H. P. Hynson, W. A. Sailer, J. H. Winkleman and H. P. Merryman.

Burial was in Loudon Park Cemetery.—J. W. E.

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WILLIAM MUIR.

1950-1911.

William Muir died at his home, 356 First Street, Brooklyn, November 24, 1911, aged sixty-one years. He was born at Glasgow, Scotland, in July, 1850. When a lad his parents came to this country and settled in Brooklyn. The boy obtained his early education in the public schools and then took a place in the drug store of Dr. J. D. Farwell, Joralemon and Court Streets. He matriculated at the College of Pharmacy of the City of New York, and received his diploma in 1870. About the time of his graduation, his employer opened a store at Broadway and Fourth Streets, New York, and in this he worked for some time. Then he clerked for Charles W. Kitchen, at Fulton and Washington Streets, Brooklyn, and for William Vincent, of the same city. In 1884, Mr. Muir went into business for himself, at Bedford avenue and South Second street, Brooklyn. Two years later he moved to Broadway and Gates avenue, where he remained until June 14, 1898. Since that time he had not been actively engaged in the drug business, it being understood that he retired with a competency.

He was always a strong organization man. As a young man he was one of the founders of the Alumni Association of the College of Pharmacy of the City of New York, and was largely responsible for the formation of the Kings County Pharmaceutical Society. In July, 1879, the first Kings County Board of Pharmacy was organized. Dr. Muir became a member of that board in 1894, and remained in it until the Greater New York board, of which he was also a member, took its place in 1901, and Dr. Muir was transferred to the latter. He remained a member of the State Board until August 1, 1910, when it went out of existence under the pharmacy law of that year, to be succeeded by one appointed by the regents of the State Univer-

sity. Dr. Muir was elected vice president of the old board in 1908 and its president the following year.

Owing to the efforts of Dr. Muir more than anyone else the Brooklyn College of Pharmacy has grown in twenty years to a large and flourishing institution, owning a building and equipment valued at something like \$100,000. As a result of his work the college, in 1897, gained legislative permission to grant the degree of Doctor of Pharmacy, and he was one of the first to receive it.

He joined the New York State Pharmaceutical Association in 1896, and was elected president in 1898, and was one of the founders of the National Association of Retail Druggists. He attended every meeting of this latter organization from the time of its formation up to last year, and was a loyal and devoted member. Dr. Muir joined the American Pharmaceutical Association in 1907.

The deceased is survived by a daughter, brother and sister. He was a Mason and took great interest in the work of that fraternity. The funeral services were held first by his lodge, at his late residence, and then at Plymouth Church (the old Beecher church), his usual place of worship.—*J. W. E.*



MEMORIAL TABLET TO MAHLON N. KLINE.

On the eve of St. Andrew's Day, 1911, the members of the Brotherhood of St. Andrew, and many friends, attended services at the Church of the Savior, Philadelphia, which marked the unveiling of a tablet in memory of the late Mahlon N. Kline, formerly president of the Smith, Kline & French Co., and one of the foremost figures in American pharmacy.

The services were beautiful and impressive, and the tablet was placed in the wall of the Church of the Savior near where Mr. Kline died, suddenly, two years ago, just as he had arrived to attend a meeting of the Brotherhood, in the work of which he took the deepest interest. The tablet was inscribed as follows:

"In sacred memory of Mahlon N. Kline, accounting warden from 1898 to 1909, this tablet is placed here by his friends to keep in mind his consecrated life and devoted service. From this church his soul began its flight

homeward to God on the eve of Advent Sunday, 1909."

Poor, old Rip Van Winkle cried out, on his return from the mountains to Sleepy Hollow, after twenty years' sleep, and no one knew him—"How soon we are forgotten when we are gone!" But this is only a half truth in the case of a life like that of Mahlon N. Kline, whose fine Christian manhood and strong personality exerted an influence upon his fellow men, in the development of individual character, that was positive and far-reaching, and will last through the years to come.—*J. W. E.*



A. K. FINLAY.

Alexander Kirkwood Finlay, of New Orleans, La., died October 20, 1911, at the age of sixty-eight years. He was a native of Ireland, and long a resident of the Crescent City. For many years he had a store at the corner of Camp and Julia streets, and later operated a prescription laboratory in the Medical Building on Baronne street. His reputation as a pharmacist was national. He retired from active business ten years ago.

He was a member of the first Louisiana Board of Pharmacy, serving on that body from 1888 to 1893, several years as president. He was one of the organizers and first vice president of the Louisiana Pharmaceutical Association in 1882, and its president in 1885-6. In 1883, he assisted in the organization of the National Retail Druggists' Association and was elected as a member of the first executive committee. Later he became a vice president of the organization. Mr. Finlay was a life member of the American Pharmaceutical Association which he joined in 1885. He was elected to the presidency of the Association in 1890.—*J. W. E.*

RESULTS VERSUS MOTIVES.

"We never see the target a man aims at in life; we see only the target he hits. We judge from results, and we imagine an infinity of motives that we say must have been in his mind. No man since the creation has been able to live a life so pure and noble as to exempt him from the misjudgment of those around him. It is impossible to get aught but a distorted image from a convex or a concave mirror."—*William George Jordan.*

Proceedings of the Local Branches

PHILADELPHIA BRANCH.

(Scientific Section.)

The Scientific Section was convened on Tuesday evening, December 5, for the consideration of the subject, "The Physical Constants of the U. S. P."

Dr. George H. Meeker of the Medico-Chirurgical College delivered the principal paper and gave numerous suggestions as regards the proper choice of constants and the proper constants for the next revision, and recommended that the standards as formulated by the United States Bureau of Standards and the Smithsonian Institution should be as largely as possible adopted. This paper contained so much of valuable suggestions that it is difficult to abstract efficiently, and as a result our readers are referred to the full text of the paper which will be published shortly.

The subject was further discussed by Dr. J. G. Hildebrand of the University of Pennsylvania and Mr. W. T. Toplis. A number of very excellent suggestions and practical considerations of the question were given by both speakers. Dr. Hildebrand spoke especially of temperature in the proper determination of most physical constants and called attention to the difficulty of obtaining and the especial need of accurate temperature determinations. He also said that the boiling point was a far less accurate constant than the freezing point in the determination of the purity of materials. He also described certain apparatus and gave a discussion of specific gravity determination which afforded a very interesting discussion.

Mr. Toplis compared the accuracy of a carpenter in measuring a piece of wood, a skilled steel worker in measuring a piece of steel, and an astronomer in making his measurements, with the pharmacist, the usual analytic chemist, and the physico-chemical investigator respectively, and stated that the accuracy which each of these conditions showed, proved it to be largely a matter of opinion, and that the approximate accuracy of the carpenter was as valuable to him as the extreme accuracy of the astronomer or physico-chemical theorist was to him. He

therefore concluded that the accuracy of the constants in the Pharmacopœia should be graded in accordance with the desires of those who were to make the greatest use of them.

The subject was fully discussed by nearly all present.

The meeting was well attended and the interest taken in the discussion of the papers read was most excellent. The meeting throughout proved a most valuable, instructive and interesting evening.

The continuation of the evening's discussion, after the adjournment of the Scientific Section, was also very spirited, and the subject of discussion, The Additions and Deletions for the next U. S. P. was discussed, and in connection therewith, the physical constants were still further discussed.

As a summary of the discussion it may be stated that the standards of the Pharmacopœia may best be controlled by publishing definite and accurate methods by which the constants should be determined and then permitting a reasonable variation in the limits set for these constants. That accurate methods of determination, rather than narrowly defined standards, therefore seem to be the best plan. That the constants which are of distinctive importance on account of the use to which the substance is to be put should be most emphasized and that other constants of minor importance may be more or less ignored.

C. H. KIMBERLY,
Secretary.

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PITTSBURGH BRANCH OF THE A. Ph. A.

A the December meeting, held on the 14th, of the Pittsburgh Branch A. Ph. A. an unusually attractive program was presented, and the discussions were animated and full of good meat.

The topic, "Microscopical Examination of Powdered Drugs," which was handled by Dr. L. K. Darbaker was of absorbing interest, and proved one of the most instructive features presented before the branch during the closing year. Dr. Darbaker used the blackboard freely in illustrating his subject, and in addition to freehand sketches exhibited numerous lantern slide specimens. The speaker evidenced entire familiarity with his subject and seemed as much at home with, and to understand the characteristics of seeds,

leaves, barks and roots of medicinal plants just as a father does his children.

The methods followed by experts in determining the identity of unknown samples of powdered plant drugs was shown, as was also the manner of procedure followed in ascertaining what portion of the plant was present whether leaf, seed, bark, root or wood, then how to recognize the family to which it belongs and finally how to reach the individual identity of the plant from which the sample under investigation is taken.

Dr. A. F. Judd read an editorial from the pen of Dr. J. H. Beal, with comments thereon, upon the subject "The Local Branches," and urged that the methods recommended by Dr. Beal for increasing interest in and attendance upon the meetings of this branch be adopted.

"The main thing is to bring together and harmonize all the association activities of pharmacists, and while it would be advantageous, of course, that as many as possible should be members of the A. Ph. A., such a joint membership is by no means essential or successful coöperative work" formed the burden of Dr. Beal's editorial utterances. Dr. Judd said another important suggestion that should be acted upon is to keep in touch with the local newspapers by sending them announcements of the meetings and reports of the papers read. In his argument favoring this phase of activity Dr. Beal says: "If the followers of some fake 'pathy' or the wild-eyed believers in some new medical ism, hold a convention, the papers are filled with their doings. Why should the fakes and the frauds have all the publicity, while legitimate pharmacy remains unknown and unappreciated?"

Following the above presentation of what ought to be done Dr. F. J. Blumenschein was named as a publicity agent with instructions to cultivate the press, and B. E. Pritchard assigned the duty of arranging for joint meetings with the local Druggists' Association.

Upon suggestion from the president the proposed new formulas for incorporation into the National Formulary were read by title only and referred to the committee appointed at last meeting to investigate and report upon at next meeting.

Dr. Blumenschein took up the subject of "Deletions and Additions in the Pharmacopœia," and gave expression to some radical

personal opinions concerning the wisdom of some of the proposals. This precipitated a free-for-all discussion during which a wide variety of ideas with reference to the contents of the published lists were brought out, participated in by Drs. Koch, Judd, Emanuel and Darbaker. The secretary read from the minutes of a meeting of the city of Washington Branch opinions concerning the work that is being done from Dr. Wiley Prof. Remington, Dr. Murray Galt Motter, Dr. that is being done from Dr. Wiley, Prof. Stanislaus, all of whom had participated in a discussion similar to that now being held. Dr. Koch closed the discussion by insisting that "regardless of other men's opinions the members of the Pittsburgh Branch should make their ideas known to the Revision Committee, doing our duty as we see it, whether acceptable to the committee or not."

As the hour reached by this time was 11:30, and as President Campbell, who comes down from Greensburg especially to attend these meetings, was holding his watch in hand in manifest anxiety for fear he would not make his home-returning train, it was wisely concluded to adjourn at this point.

B. E. PRITCHARD, *Secretary*.



NEW ENGLAND BRANCH.

The annual meeting and dinner of the New England Branch was held at Hotel Plaza, Boston, Wednesday evening, December 13. President James F. Fineran presided.

Dinner was served at 6 o'clock, after which the members listened to some very interesting speaking.

The first speaker was Dr. B. H. Smith, Chief of U. S. Food and Drug Inspection Laboratory at Boston. He spoke on the Food and Drugs Act, the causes for its passage and the practical application of its provisions. He explained the difficulties of making decisions and reviewed a number of recent court rulings which affected his department.

The next speaker was Prof. Charles F. Nixon, a member of the U. S. P. Revision Committee, who took up the proposed pharmacopœial additions and deletions. Mr. Nixon also described the methods by which satisfactory formulas and processes were obtained.

Mr. William H. Glover followed with remarks about certain changes proposed for the National Formulary, starting considerable discussion about Liquid Petrox for which a

new formula had been suggested. The consensus of opinion seemed to be that Liquid Petrox was very satisfactory at present.

The election of officers for 1912 resulted as follows: President, Charles F. Nixon, Leominster, Mass.; Vice President, Albert W. Meserve, Kennebunk, Maine; Secretary-Treasurer, R. Albro Newton, Southborough, Mass.; Chairman Committee on Professional Relations, Frank F. Ernst, Jamaica Plain, Mass.; Chairman Committee on Membership, William H. Glover, Lawrence, Mass.

R. ALBRO NEWTON, *Secretary*.

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CITY OF WASHINGTON BRANCH.

The City of Washington Branch of the A. Ph. A. met in regular session at the National College of Pharmacy, December 20, 1911. In the unavoidable absence of the President, Vice-Presidents and Secretary, Dr. Henry E. Kalusowski was called to the chair and Dr. M. G. Motter acted as Secretary.

The minutes of the previous meeting having been extensively printed in the drug journals, their reading was, on motion, dispensed with.

The first business of the evening was the report of the Committee on Nominations, which was as follows:

Your Committee on Nominations begs to submit the following recommendations:

1. That the representative of the Branch on the Council of the A. Ph. A. serve also as Secretary of the Branch. This, for the reason that such practice seems to be growing among other branches; the advantages are sufficiently obvious.

2. For officers and committeemen for the ensuing year: President, Lewis Flemer; First Vice-President, Lyman F. Kebler; Second Vice-President, Henry E. Kalusowski; Secretary and Council Member, Samuel L. Hilton; Treasurer, Wymond H. Bradbury; Committee on Membership, Herbert C. Easterday; Committee on Legislation, Willard S. Richardson; Committee on Medical Relations, Frank C. Henry; Committee on Scientific Communications, Rodney H. True; Committee on Publicity, Martin I. Wilbert.

Respectfully submitted,

MURRAY GALT MOTTER,
Chairman.

M. G. Motter moved that the report be adopted and the acting Secretary directed to cast the ballot of the Branch for the officers and committeemen named.

S. L. Hilton expressed his appreciation of

the honor of serving as Secretary of the Branch, but explained that in view of other pressing duties he would be obliged to decline the nomination; he therefore moved, as an amendment, to substitute the name of Henry B. Floyd, Professor of Commercial Pharmacy in the National College of Pharmacy, for his own. Seconded by Wymond H. Bradbury. After some discussion, the amendment was put and carried; the report, as amended, was adopted, the acting Secretary cast the ballot as directed and the Chair announced the officers elect.

The paper of the evening, by Prof. W. A. Puckner, of Chicago, on "The Physician and the Pharmacist," was read by the acting Secretary.

The ensuing discussion was limited largely to the possibilities of developing in connection with the retail drug business, such laboratory work as is necessary for making the several official preparations.

H. E. Kalusowski expressed the belief that many fluidextracts can be prepared far more satisfactorily and efficiently in a small way by the pharmacist than in a large way, where often unidentified drugs in bulk are turned over to an incompetent, underpaid and inexperienced boy. The choice of alcohol is important and the details of the method of preparing the extract require skill and experience.

W. H. Bradbury does not believe that the retail druggist will return to the making of fluidextracts; on the contrary, he is getting farther and farther away from it, and the young graduate, though better educated and trained at the outset, is not inclined to take up such work.

S. L. Hilton thinks that the retail pharmacist is getting back to making a large number of preparations for himself, though the commercial druggist may not. There are obviously two classes of men in the business, the scientific and the commercial.

Worth Hale thought the physician would go a long way to patronize a pharmacist of this type. He has found that the preparations on the market vary widely, regardless of the reputation of the manufacturer. His own ergot preparations, for instance, have been found to be distinctly stronger than the market product, though some of the latter came direct from the manufacturer. With reference to digitalis, the crude

drug certainly does not vary as much as do the finished products.

H. E. Kalusowski offered as an explanation of the present day conditions the suggestion that the manufacturer has hypnotized the retailer into the belief that he can do the work on a large scale cheaper as well as better.

S. L. Hilton cited a recent calculation as to the cost of certain tablets, which have been cut and re-cut; after allowing the usual percentages for cost of materials, labor, sales, etc., the manufacturer still has a profit of 90 per cent. The retailer, with a small tablet machine, can easily turn the trick himself. He has found that he can make certain fluidextracts at a cost considerably lower than the prices offered by the large manufacturers.

W. S. Richardson quoted the man who said he could sell witch hazel at *any* price, so long as he had a spigot and a barrel in his back room; and W. O. Emery told of a junk dealer who bought empty arrack barrels, filled them with cologne spirit, and then sold the contents as arrack.

The members present then discussed the third instalment of proposed new formulas for the N. F. Several of the members expressed the belief that some at least of these new additions would serve no good purpose other than to fill a somewhat vociferous demand from a very limited section.

Discussing the formula for Honey of Rose with Borax, H. E. Kalusowski expressed himself as pleased at seeing this old preparation rejuvenated. He could not recall ever having seen a formal pharmaceutical process suggested for it.

The discussion recurred to the question of patents and attention was called to the fact that coincident with the increase in their manufacture there has been a decrease in the advertising, or perhaps methods and localities have changed. Mr. Bradbury remarked that many of the patents undoubtedly had some virtue and that this fact was practically admitted by the Council on Pharmacy and Chemistry, which had admitted many of them to its quasi-scientific list.

There being no further business, the Branch, on motion, adjourned at 10:20.

MURRAY GALT MOTTER,
Acting Secretary.

DENVER BRANCH.

Members of the Denver Branch of the American Pharmaceutical Association gathered at the Traffic Club at 6:30 p. m. Tuesday evening, December 19th, as guests of the Davis-Bridaham Drug Co., who entertained the members at dinner.

After enjoying the elaborate meal the meeting was called to order at 8:10 by Pres. Best.

Minutes of the previous meeting were read and approved.

The president stated that the nomination of officers for 1912 was in order, whereupon Mr. Ford moved that the present officers be renominated for another year. The motion was seconded and carried. A further motion that nominations be closed was also seconded and carried.

Mr. Martin was then called on to report what arrangement his committee had made with the city association regarding the entertainment of the A. Ph. A. next August.

Mr. Martin reported that the city association had appointed a committee of four, Healy, Clark, Wilson and McKenzie, who with the local secretary of the A. Ph. A. as chairman of this committee, was to have entire charge of affairs. This committee has power to appoint sub-committees as it may require.

It was moved and seconded that the conference committee's report be accepted and the committee discharged. Motion carried.

The Membership Committee reported five new members as follows: Messrs. John A. Baily, Edward Eberhardt, Wm. J. Wobido, L. A. Jeancon, and Edgar C. Healy. The report was accepted and the new members were welcomed by the president.

The chair then called on Mr. Martin, council member, to state if or not he had received any word from the council regarding the election of a local secretary to succeed Mr. Scholtz who resigned. Mr. Martin said that Mr. England had nominated Mr. C. M. Ford as local secretary which motion had been seconded by Mr. Beal and that the question had been put to the council for a vote. He had not heard further on the matter but thought Mr. Ford would be elected to fill the vacancy.

The secretary then read a message from Mr. A. W. Scott of Ft. Collins, which had been received by long distance phone. Mr. Scott expressed his regrets for being unable

to attend the Denver meeting and extended his best wishes for an enjoyable evening.

Mr. Nitardy stated that the By-Laws of the branch were not adequate and should be amended. He offered the following as a suitable set of by-laws.

By-Laws of the Denver Branch of the A. Ph. A.

ARTICLE I.

OFFICERS AND COMMITTEES.

1. Officers—The officers shall consist of a president, first and second vice-presidents, and a secretary-treasurer.

2. Executive Committee—The officers of the branch shall constitute the Executive Committee which may transact all business for the branch, unless otherwise provided for. Three shall be a quorum.

3. Standing Committees—Three standing committees shall be appointed by the president at the first meeting after election of officers each year as follows:

(a) Membership Committee—To consist of a chairman and secretary. Its duty shall be to carry on a vigorous campaign for new members; it may use such funds as the Executive Committee shall direct for this purpose and shall make an annual report at the January meeting of the branch.

(b) Program Committee—To consist of a chairman and two associate members. The committee shall, at its first meeting, elect one of its members as secretary. Its duty shall be to provide a suitable and interesting program for all regular branch meetings and shall send a notice of same to the president and secretary of the branch two weeks prior to each meeting.

(c) Committee on Education and Legislation—To consist of a committee of one. The committee may at any meeting make such reports or suggestions as may be desirable or opportune, and shall make an annual report at the January meeting of the branch.

4. Special Committees—The president may, at any time, appoint such special committees and define their duties as may be required for the proper execution of the work of the branch. Such committees shall continue to the end of the fiscal year unless otherwise specified.

ARTICLE II.

ELECTION AND DUTIES OF OFFICERS.

1. The officers shall be elected annually in January.

2. The officers elected shall assume their duties with the adjournment of the January meeting each year.

3. The president shall call all regular and special meetings and preside over same, and perform such other duties as defined in these by-laws.

4. The first vice-president shall assume the duties of the president in his absence.

The second vice-president shall assume the

duties of the first vice-president in his absence.

6. The secretary-treasurer shall send a notice of all Branch and Executive Committee meetings to the members of the branch or committee respectively; keep minutes of these meetings; carry on all correspondence for the branch; collect all dues and other moneys; pay out such moneys as authorized by the president or Executive Committee; keep an accurate record of all accounts; make an annual report at the January meeting of each year and perform such other duties as may be directed by the Executive Committee.

ARTICLE III.

MEETINGS.

1. Regular meetings of the branch shall be held the evening of the third Tuesday of each month, except during the months of July, August and September. Special meetings may be called by the president at any time. Five members shall be a quorum.

ARTICLE IV.

MEMBERSHIP AND DUES.

1. Any member of the A. Ph. A. shall be eligible for membership in the Denver Branch.

2. The branch dues shall be \$1.00 per year, due in January for the ensuing year, or payable at the time of joining the branch.

ARTICLE V.

PUBLICITY.

1. Notice and proceedings of all branch meetings shall be sent to the Journal of the A. Ph. A., the Rocky Mountain Druggist, and such other pharmaceutical journals as the Executive Committee may direct.

ARTICLE VI.

AMENDMENT OF BY-LAWS.

These By-Laws may only be amended when notice of the proposed change is given at the preceding meeting. A three-fourths vote shall be necessary.

It was moved that the reading of the proposed By-Laws be accepted as the notice for change of By-Laws as required. They will be acted on at the next meeting.

President Best then introduced Mr. George McDermid, chemist of the tar plant of the Denver Gas & Electric Co., who read a paper on the "Manufacture of Coal Tar and Coal Tar Products."

During the reading of the paper Mr. McDermid exhibited samples of the various products referred to and answered many questions on matters related to coal tar, which added much to the value of the interesting paper.

The president then called on Mr. Charles

Mr. Ford, who presented a paper on "Legalized Adulteration of Food and Drugs."

Mr. Ford's paper created quite a discussion on preservatives, especially Sodium Benzoate.

Mr. W. A. Hover then read some extracts from a proposed ruling of the Department of Agriculture on the restriction and regulation of the sale of narcotic drugs.

Expressions on the traffic were decidedly in favor of prohibiting the manufacture and sale of cocaine entirely on the ground that cocaine does and has done more harm than it can ever do good.

As it was about time for the owl car, the meeting adjourned after giving a rising vote of thanks to the Davis-Bridham Co. Mr. McDermand and Mr. Ford.

F. W. NITARDY *Secretary*.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

<>

CARL E. SMITH,
From 1320 Pine St., Philadelphia, Pa.
To 627 Spruce St., Philadelphia, Pa.

THOMAS E. BROWER, Sergt. 1st. Class. H. C.
From Fort Wingate, N. M.
To Fort Greble, R. I.

H. VON OEHSSEN, Sergt. 1st. Class. H. C.
From 2111, 18th St. N. W., Washington,
D. C.
To 721 13th St. N. W., Washington, D. C.

FAULTS OF TABLET MEDICATION.

"The much-used tablet, compressed or triturate, doubtless renders much medication valueless, and perhaps, fortunately, harmless. The speed of solution of most tablets on the market is problematical, hence if the action of a tablet is immediately desired it should be predissolved, or at least crushed by the teeth before swallowing, and then a good drink of water taken with it. It should not be forgotten that anything that may bite or irritate the membrane of the mouth will do the same to the mucous membrane of the stomach. Hence bromide tablets should never be taken undissolved. Potassium chlorate tablets dissolved in the mouth or swallowed are dangerous. Potassium chlorate solutions for the mouth and throat are valuable, but there is no justification for ever taking potassium chlorate into the stomach or into the system."—J. A. M. A.

REMOVING FASTENED STOPPERS.

Reagent bottles holding caustic alkalies, alkaline carbonates, etc., very frequently become fixed, and the usual method has been to tap the stopper with a wooden block or the application of heat to the neck, or a combination of both. Results are poor in certain cases and often culminate in the fracture of the neck. The inverse process may be used to advantage. In other words, freeze the stopper, thus causing a contraction of the stopper from the neck. The bottles which I used for experiment had failed to open under the heating and tapping, and were bad cases of fixed stoppers. The bottles held sodium carbonate that had formed sodium silicate, an excellent cement, and so were firmly fixed. They were inverted in a mixture of crushed ice and calcium chloride, taking care that the freezing solution did not touch the lips of the bottles. After standing twenty minutes, each stopper was removed without the slightest exertion. This is the neatest and safest way to remove stoppers from bromine bottles and other corrosive chemicals.—*Scientific American*.

SPECIAL ATTENTION

Drug stores (snaps) for sale and trade in 48 states. Drug stores handled. Drug jobs in 48 states. Medical practices furnished and handled. Physicians furnished. Established 1904. Strictly reliable. Gilt edge references. Let me know your wants.

F. V. KNIEST, R. P., Omaha, Nebr.

IODONE, LILLY---A New Chemical Compound

Liberates Free Iodine on Contact with Moisture

CHEMICAL NOTE—Iodone, Lilly, is produced by the action of iodine upon the anhydride of phthalic acid. It is a lustrous crystalline compound of dark green color. In the presence of moisture it liberates 52 per cent. of free iodine. To make it applicable to medical and surgical uses it is diluted with inert vehicles in such proportions that it liberates but 2 per cent. of free iodine on contact with moisture.

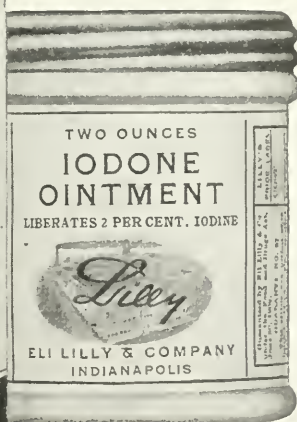
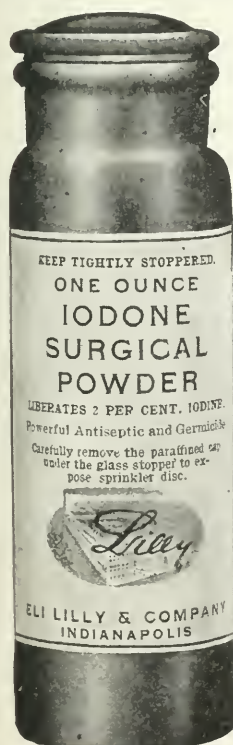
Iodone, Lilly, Makes Iodine Available for a Wide Range of Medical and Surgical Uses

For years iodine has been recognized as one of the best germicides, besides it possesses peculiar stimulating properties on the processes of repair. Its use in medicine and surgery, however, has been limited owing to want of satisfactory means of applying. The tincture is too irritating in many cases, besides it does not meet the demand for a dry dressing and previous dry preparations of the class of iodoform do not liberate free iodine under ordinary conditions. IODONE, LILLY, in both its forms frees iodine under the conditions stated above and all claims for it have been thoroughly established by extensive clinical tests.

IODONE SURGICAL POWDER, LILLY

Applied to Infected Wounds, Boils, Ulcers, Abscesses, Etc.

Liberates gradually and automatically 2 per cent. free iodine on contact with the moisture of the secretions. It gives *prolonged action without irritation*—sterilizing, and stimulating repair. When secretions of moisture cease it acts as a simple dry dressing.



IODONE OINTMENT LILLY

For Skin Diseases of Parasitic Origin, Eczema, Erysipelas and other cutaneous affections where iodine is indicated.

An Opportunity for the Retail Druggist

These products are being advertised widely to physicians and in accordance with the well-known Lilly policy will be supplied solely through Retail Drug channels. We suggest that you prepare for early calls by ordering a few packages from your jobber.

ELI LILLY & COMPANY

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NEW ORLEANS

Bacterins

BACTERINS (bacterial vaccines) are killed bacteria suspended in physiological salt solution. They stimulate the production of protective substances (antibodies) and are used to prevent or overcome bacterial infections.

Each bacterin is indicated for the infection caused by its corresponding bacterium; for instance, a staphylococcal bacterin is used for staphylococcal infection. Accurate diagnosis is therefore necessary.

FOR THE GENERAL PRACTITIONER the use of stock bacterins is advisable because valuable time is thereby saved.

It is well recognized that mixed infections are usually present in infectious diseases. **"MIXED" AND "POLYVALENT" (MANY DIFFERENT STRAINS) BACTERINS ARE THEREFORE BECOMING DESERVEDLY POPULAR.** As regards their use, Polak states:

"The mixed vaccines of reliable laboratories have given better results than when a single variety was used. This has been shown repeatedly in the blood picture when an autogenous vaccine of a single strain used in large doses up to 500,000,000 has failed to increase the leucocyte count or diminish the polynuclear percentage, the mixed vaccines of several strains have promptly produced a marked leucocytosis. Even colon bacillus infections, such as the infection of a pelvic hematocoele by the colon bacillus, have yielded more promptly to mixed vaccines of polyvalent strains than when a single autogenous germ has been used." (Journal American Medical Association, November 25, 1911, p. 1738.)

THE PROPHYLACTIC VALUE OF BACTERINS is proved beyond question in typhoid fever, and preventive medicine suggests immunization against streptococcal, colon, staphylococcal, pneumococcal and tubercular infections by the use of their corresponding bacterins.

THE RESULTS FOLLOWING THE GENERAL USE IN THE U. S. ARMY of typho-bacterin in protective vaccination against typhoid fever are little short of marvelous. "During the past three years 60,000 men completed the three inoculations; but twelve cases of typhoid fever developed during this time and no death occurred." (Phalen and Callison, Medical Record, December 9, 1911, p. 1203.)

We prepare the following:

Acne-Bacterin (Acne Vaccine)
Cholera-Bacterin (Cholera Vaccine)
Coli-Bacterin (B. Coli Vaccine)
Influenza-Bacterin Mixed (Influenza Vaccine Mixed)
Friedlaender-Bacterin (Friedlaender Vaccine)
Neisser-Bacterin (Gonococcal Vaccine)
Neisser-Bacterin Mixed (Gonococcal Vaccine Mixed)
Neoformans-Bacterin (Neoformans Vaccine)
Pneumo-Bacterin (Pneumococcal Vaccine)
Pneumo-Bacterin Mixed (Pneumococcal Mixed)
Pulmonary-Bacterin Mixed

Pyocyano-Bacterin (Pyocyanus Vaccine)
Scarlatina-Bacterin (Scarlet Fever Vaccine)
Staphylo-Bacterin (Staphylococcal Vaccine)
Staphylo-Bacterin Mixed (Mixed Staphylococcal Vaccine)
Staphylo-Acne-Bacterin (Staphylo-Acne Vaccine)
Staphylo-Albus-Bacterin (Staphylo-Albus Vaccine)
Staphylo-Aureus-Bacterin (Staphylo-Aureus Vaccine)
Strepto-Bacterin (Streptococcal Vaccine)
Typho-Bacterin (Typhoid Vaccine)

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**A moderate stock, with distribution of scientific literature,
 will interest your physicians.**

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The American Pharmaceutical Association

Organized: Philadelphia, 1852.

Incorporated: Washington, D. C., 1888.

Sixtieth Annual Convention, Denver, Colo., August 19, 1912.

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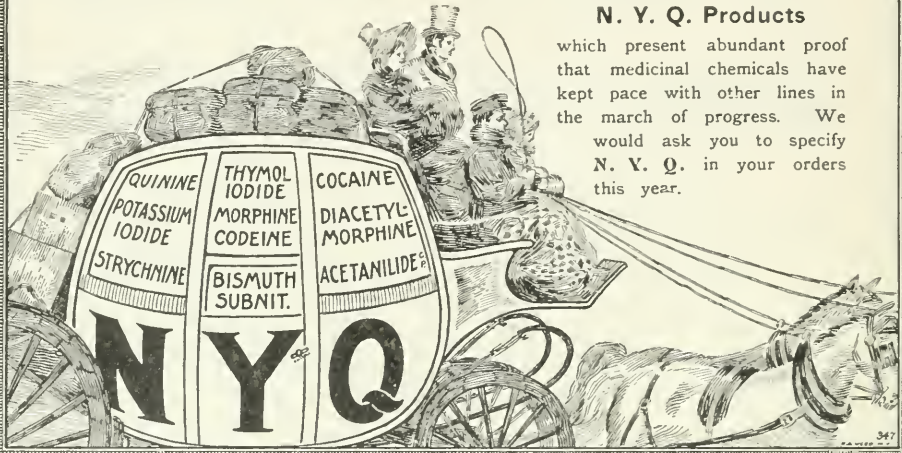
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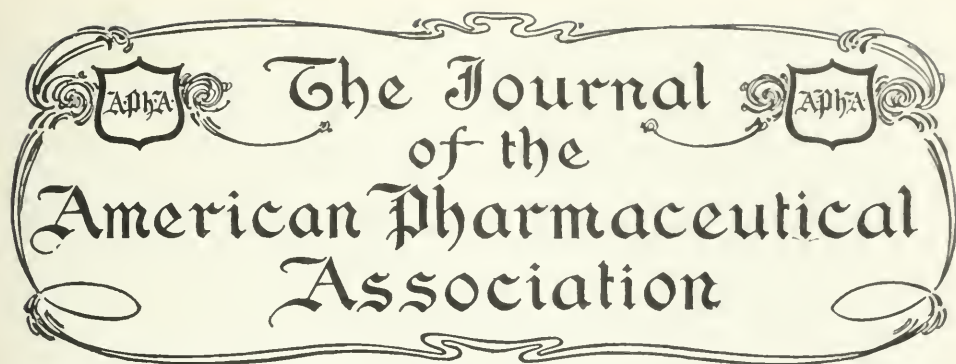
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The Journal of the American Pharmaceutical Association

Volume I

FEBRUARY, 1912

No. 2

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, \$3.00 per annum, within the United States. To Canada, \$3.25. To other foreign countries in Postal Union, \$3.50 per annum. Single copies, twenty-five cents.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

Papers and communications for insertion in the JOURNAL should be sent to the Editor, James H. Beal, Scio, Ohio. Subscriptions should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

ASSOCIATION RESPONSIBILITY.

"I DID not like a statement made by your president in his annual address at the — convention, so I dropped my membership and since then have used my influence against the association."

Probably every pharmaceutical association in the United States, local, state or national, has been similarly condemned because of the real or fancied offense of some of its members.

What a just and sapient decision! Because some one member or official chances to disagree with the individual on a question of policy, the whole association is to be condemned!

It may be that the seceding individual is enjoying increased rank or pay, or that the laws under which he does business have been materially improved, or that his business has been increased, or that he is able to obtain better prices for his goods because of the unselfish labors of this same association, but no matter, one member having offended, all have offended!

No doubt this aggrieved individual has frequently declaimed at the injustice of muck-raking newspapers which hold all druggists to be booze sellers and substitutors because a few have been proved to be such, but he makes himself guilty of the same offense when he summarily condemns a whole association for the faults of a few members.

In trying to imagine the mental condition which would lead a member to such an unjust and unreasonable decision the following suggest themselves:

One cause may be mere peevishness of temper, or an unwillingness to allow to

other members the same freedom in action and expression of opinion that he would claim for himself. We have frequently noticed that people who are freest in the criticism and condemnation of others themselves have sensibilities as delicate as Job's tenderest furuncle. These are infirmities of temperament, and while we condemn, we must also pity those who are thus afflicted.

Another reason may be the member's desire to have an excuse for altogether repudiating his obligations to a society which has a just claim upon his loyalty and service. The disposition and character of one who is willing to accept the benefits of services rendered at a sacrifice by others, while evading his just proportion of the financial and other burdens, cannot be properly described in printable language, and more need not be said.

The third and most probable explanation is that the complaining member has totally misconceived the relation of a voluntary society to its members, and its power to coerce their actions. When this is the cause there is hope that he will, upon reflection, revise his unjust judgment and again become a loyal and useful member of the society.

In the case of a commercial corporation, the acts of an agent may be regarded as probably reflecting the predetermined policy of the whole, because the directorate of such a body can say to its servant, "Do this," and "he does it"; but in the case of a voluntary association when the same command is given to a member, he may do it or not, as it suits him.

A voluntary association is a combination of people who desire to act together in the furtherance of a common object or policy. What this object or policy shall be is determined by the consensus of opinion expressed by formal resolutions, or by a course of conduct so uniform and so long continued as to justify the belief that it represents the will of the majority. It is not determined by the isolated acts or statements of individual members, or even by officials, for over these the association can exert only a moral influence, and can enforce its commands only within wide and very generous limits.

While we are upon this subject of responsibility why not turn the question "end for end," and consider the responsibility of the member to his association? Whether the association is large or small, local or national, the chances are that it has done far more for him than he has ever done for it.

After many years of observation of association work, the writer is fully persuaded that every druggist who is eligible should be and can afford to be, if not an active, at least a supporting member of his local and of both the great national associations—more than this, that he cannot afford not to be a member of these.

What do the extra dues amount to when compared to the magnitude of the work to be done? Why should the great burden of reformatory and constructive work be borne by a few? If the active members give liberally of their time, energy and money for the development of better conditions in pharmacy, why should the inactive ones grudge the help of a few paltry dollars? For very shame they should tender their dues voluntarily, together with their apologies for not being able to do more of the active work themselves!

Shall the man engaged in pharmaceutical work, and who claims to be at least a semi-professional man, be shamed by the member of the hod-carriers' or bricklayers' union?

Who will fight his battles for him if the associations do not? If the laws are insufficient or unjust, what forces will secure their correction if not the associations? If he is suffering from unfair discrimination by another and more powerful branch of the trade, who will procure fair treatment for him if not the associations? If his business is being unjustly invaded by unqualified persons, upon whom can he rely to bring about the enactment of legislation to confine the sale of drugs to those whom the law requires to be qualified, if not upon the associations?

If he thinks he can accomplish any one of these things without the aid of organization, let him go before the State Legislature, or Congress, or other branches of the trade, as an individual, and thus realize what an insignificant grain of human sand he is when he attempts to act singly. Let him make but one such effort and he will ever after be a loyal and enthusiastic association man.

J. H. BEAL.



THE UNQUALIFIED MEDICINE VENDOR.

THE greatest hole in the average pharmacy act is that provision which permits the unqualified vendor to sell what are known as the "ordinary" or "household" drugs and medicines, a clause which is generally interpreted to mean that he may sell almost anything not recognized by the laity as dangerously poisonous—as well as some that are so recognized—and including the greater portion of the articles which are to be found in the druggist's stock.

Are we justified in hoping that public opinion will ever sufficiently change from its present state of indifference, founded mainly on misinformation, to permit the closing of this legal aperture?

If we appeal to the memories of those whose generation reaches beyond the earlier pharmacy acts we shall learn that the enactment of these first laws, feeble as they were, at one time seemed as improbable as the checking of the unqualified vendor seems now. May we not reasonably hope therefor that public opinion will continue to advance until it will favor legislation that will provide real and adequate safeguards for the public health.

Is there any real argument, except the selfish one, in favor of the legal restriction of the sale of medicines—those which are alleged to be harmless as well as those which are admittedly dangerous—to the registered pharmacist?

The vendor of ordinary varieties of merchandise must meet the competition of all comers, why should not the vendor of medical merchandise do likewise?

The two cases, however, are not at all parallel. If a citizen desires to establish a grocery or hardware store the only authority to be reckoned with is the credit man of the wholesaler from whom he expects to receive his supplies. If, however, he desires to practice pharmacy he must reckon not only with his jobber, but the law steps in and declares that, in the interest of public safety, he must serve a certain number of years of apprenticeship, and that finally he must satisfy a keenly critical examining board as to his fitness to safely compound and dispense drugs and medicines. If this heavy burden of educational preparation and experience is laid upon the man who calls himself a druggist, why should it not be equally imposed upon all who vend drugs and medicines?

"But," says the objector, "why not restrict the handling of strychnine, arsenic and other dangerously poisonous substances to the educated and trained pharmacist, but let any one who chooses to do so handle patent medicines and ordinary and non-poisonous drugs?"

Why not indeed? Why not pay the policeman for his time only when he prevents a murder or a crossing accident and let him stand watch and ward during the remainder of the time at his own expense?

Why not pay the fireman for the time spent in extinguishing a fire, and let him be on hands at the station house between fires at his own cost and keep; or why not pay premiums to the insurance companies only when there is a fire, and let them carry the policy at other times for nothing?

The necessity for supporting the qualified vendor of poisons and dangerous chemicals is the same as the necessity of supporting the policeman, the fireman and the insurance company—that they may be on hand when wanted.

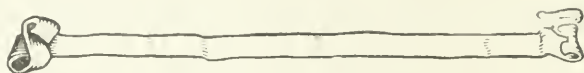
If the unqualified vendor may handle the greater portion of the medicinal articles of the druggist's stock on the plea that they are non-poisonous, what is there left for the druggist to sell? Certainly not enough in the form of highly dangerous drugs to justify the long and expensive preparation which the law exacts.

But are there any strictly harmless drugs and medicines, or any the unrestrained and incautious use of which may not be dangerous to the user? If there are any such their names are as yet unknown to the student of materia medica.

While the activity of drugs may vary through an infinite number of degrees, it may be accepted as a general rule that whenever the activity is sufficient to produce a decided therapeutic effect in disease, it is sufficient to produce a deleterious effect when improperly used, either as to time or quantity.

If space permitted, many other reasons might be given for restricting the prescribing and dispensing of *all* drugs and medicines to those who have been properly trained to exercise these respective functions, and when doctors and druggists are willing to lay aside their foolish antagonisms and work together the day will not be far distant when the law will contain such provisions.

J. H. BEAL.



Contributed and Selected

REASONS FOR PROMOTING THE STATUS OF THE HOSPITAL CORPS OF THE UNITED STATES ARMY.

GEO. F. PAYNE.

We wish to see remedied as far as possible the present and long standing condition which makes it actually impossible to secure for the Medical Department the class of men necessary for the efficient performance of duties connected with the care of the sick and the sanitary service in general. Inasmuch as all branches of the army are practically in competition with each other for men possessing the necessary qualifications, it is obvious that efficiency can only be maintained by offering equal opportunities for advancement in all branches, or, as in this case, by a compensatory increase in the rate of pay in those branches in which the noncommissioned grades are relatively few in number as compared with other corps.

Prior to the Act of May 11, 1908, the privates first class of the Hospital Corps received \$5.00 per month more than privates of the line of the army. It appears to have been recognized by Congress that the work of the Hospital Corps was not only arduous and confining, but that, involving as it does the care of the sick and wounded, the compounding of drugs, etc., it was extremely technical and responsible, and that to secure the class of men who met the requirements indicated, it was necessary to offer some better inducement than the pay of a private soldier. The Act of May 11, 1908, gave no increase in pay to the private first class, Hospital Corps, while the pay of other soldiers was increased *from 20 to 80 per cent with the sole exception of the Hospital Corps*. About 12 per cent of the total strength have the grade of corporal at \$24.00 per month on first enlistment, while in the Hospital Corps the proportion of corporals to the total strength is but 1.42 per cent. Plainly therefore the opportunity for advancement for the privates of this corps are about ten times less than in other staff departments. In actual figures the difference against the Hospital Corps amounts to the loss of 400 corporals; there being in this corps but fifty corporals (or 1.42% of its total), while on the basis which prevails in other staffs—the Signal Corps for example (12.88%)—there would be 450. It requires no elaborate argument to show that the loss of promotion which would be possible with 450 corporals has a most serious effect on the class of men who enlist for the lower grades—those of private and private first class. To a great extent the Hospital Corps is now compelled to accept men who realize their inability to make good in other branches where, the prospects of advancement being so much better, there is a far wider field from which to make a selection. It follows, therefore, that unless legislation can be enacted which will give to the Hospital Corps the same pro-

portionate number of corporals as in other corps, that there must be some compensatory increase in the pay of the privates first class. The increase requested is \$3 per month, which will make the pay of this grade \$21 instead of \$18. It is observed, in passing, that the farrier, who, under the direction of the veterinary surgeon, cares for sick mules and horses now receives \$21, a higher wage than that now paid the Hospital Corps privates, first class, who, under the direction of the medical officers, care for the sick soldier or officer.

The sergeants of the Hospital Corps now actually receive less pay than any other non-commissioned officers of the same grade in any branch of the service. Their flat pay is \$30 per month, without the opportunity to qualify in marksmanship, gunnery, or so-called special ratings, as in other branches; these qualifications add from \$2 to \$9 per month to the flat pay of sergeants in all other branches. In the Signal and Coast Artillery Corps, the sergeant and second class electrician sergeant respectively, who may fairly be compared with the sergeants of the Hospital Corps, receive \$36 flat pay.

To obtain the position of sergeant in the Hospital Corps, the soldier is required to qualify in a written examination in pharmacy, materia medica, care of sick, elementary hygiene, arithmetic, minor surgery and hygiene, and is, in addition, examined orally in army regulations, nursing, practical pharmacy, clerical work, drill, minor surgery, including extraction of teeth. In other branches, an examination of relatively equal scope and difficulty is required only of sergeants and second class electrician sergeants of the Signal and Coast Artillery Corps, and their pay is \$36, as compared with \$30 of the Hospital Corps sergeants.

The duties of the Hospital Corps sergeants are arduous, confining and responsible. In the compounding of prescriptions alone, he assumes a responsibility which merits adequate remuneration. In the pay increase of 1908 sergeants of infantry, cavalry and artillery received an increase of 65%; the sergeants of the Hospital Corps received an increase of 20%. It is proposed in accompanying bill to pay the sergeants of the Hospital Corps \$36, as in the case of Signal Corps sergeants and second class electrician sergeants. Considering the long hours of duty and nature of the work devolving upon them, it is believed that the proposed equalization is not only necessary, in the interests of the sick, but also just to the corps.

The grade of pharmacist at \$75—corresponding to that of master signal electrician and master electrician—is created by this bill with the object of placing the Hospital Corps on a basis of equality with other branches and offering to the noncommissioned officers of this branch opportunities equal to those obtainable in others. This course is necessary if the medical department is to secure its quota of the best and most desirable soldiers. At the larger hospitals it is necessary, as there will be found five or six sergeants first class all receiving the same rate of pay, although the senior carries the responsibility for his juniors. The work of such a man requires highly technical training and considerable ability; such men will not at present enlist in the Hospital Corps because they realize the better opportunities open to them in other branches. The grade of pharmacist exists in the navy and in the Marine Hospital service at a far higher rate than that proposed for the army.

An increase of \$15 per month (from \$50 to \$65) is proposed for the sergeants

first class. The proposed rate equals that of the engineer in the coast artillery. What has been said about the qualifications, duties and responsibilities of the sergeants of the Hospital Corps applies with greater force to the sergeants first class. The latter are selected by competitive and searching examination from the best qualified sergeants; they perform the duties of pharmacists, clerks, store-keepers, disciplinarians, anesthetists and are practically continually on duty and at work. The sick soldier is sick quite as much at night as during the day and it is the function of the sergeants first class and sergeants to nurse and supervise the nursing of the sick. The sergeants first class are practically the house surgeons, pharmacists and chief nurse combined, of our military hospitals.

Alone of all noncommissioned officers of the army, the sergeants first class are subject to re-examination professionally every three years. This fact alone compels these men to devote to study the majority of the few hours of spare time which others can devote to amusement. Under present conditions the sergeants first class are all on the same level of pay; there is no reward for exceptional qualifications or merit. In this respect the Hospital Corps differs from any other branch of the army and with a most unfavorable result.

The duties of the Hospital Corps in the field are even more arduous than in garrison. The work of driving an ambulance filled with sick is, for example, quite as important as driving a wagon loaded with forage. Yet the wagon driver receives \$40 if a civilian and \$21 if a soldier; while the Hospital Corps private receives but \$16 or \$18.

In the navy the first class hospital apprentice corresponding to first class private Hospital Corps, receives \$33 as compared with \$18 in the army.

The privates of today are the noncommissioned officers of the future; it is a military axiom that good noncommissioned officers—men trained in their specific duties—are absolutely necessary for military efficiency. It follows that if the Hospital Corps cannot obtain good material for privates the quality of its non-commissioned officers will decline. The private soldier seeks and obtains his reward to noncommissioned rank—that of corporal, sergeant, etc., and without some improvement in the pay of those and other grades, it is evident that men competent to become noncommissioned officers will not enter the Hospital Corps.

The soldier, whether officer or enlisted man, has practically no voice in the selection of his nurse or pharmacist; the national government provides both and whether skilful or otherwise, the soldier must perforce be content. The functions of the nurse and of the pharmacist are too responsible to be entrusted to men of a low order of intelligence or who lack appreciation of the responsibilities of their duties. It is a matter of official record in the War Department, as reported by numerous medical officers, whose interests are purely professional and humanitarian, that the morale and quality of the Hospital Corps are a progressively declining factor. The outcome is obvious and requires no comment.

Following the custom in all branches of the army, it is proposed to change the designation Hospital Corps to Medical Corps. The Hospital Corps is the only branch in which the soldier belongs to one corps and the officer who immediately commands him, to another. The present arrangement has nothing to commend it and much to criticise. It is unwieldy, administratively cumbersome and inhibits the development of that esprit de corps which is maintained in other branches.

The National Guard under certain conditions becomes an actual portion of the United States Army, and the above arguments apply with equal force to its members, hence the pharmacists of the whole country are deeply interested. This matter is a serious one, for even during actual hostilities more men die in the United States Army from sickness than from the missiles of the enemy, which shows how very important is the promotion of the efficiency of the Hospital Corps.

BETTER PAY DESERVED BY THE ARMY HOSPITAL CORPS.

"The decline in efficiency of the Hospital Corps of the United States Army has been made the subject of an official report by the surgeon-general to the chief of staff. As a result, the American Pharmaceutical Association has taken up the cause of the military pharmacists and proposes to urge legislation which will increase the efficiency of the Hospital Corps, in accordance with the recommendation of the surgeon-general. The functions of this corps range from those of kitchen helper to those of the trained nurse; it includes the pharmacist, clerk, photographer, ambulance driver and orderly. The nursing of the sick, the sterilization of instruments and dressings, the compounding of medicines—all the details of an intricate system of property accounting and sick records are in the hands of the members of the corps. They are the only nurses at army hospitals, except at four or five general hospitals in the United States and in the Philippines.

"The federal government is under a moral, if not a legal, obligation to furnish efficient and capable nursing and pharmaceutical service to the army. The government should also set an example in the organization and service of its hospitals. The sick soldier should not be left to the untrained and incompetent. From the privates of the Hospital Corps are drawn its non-commissioned officers. If the privates are not carefully selected men of education and reliability, the non-commissioned officers will not be much better. Supervision of military hospitals, the sick, the attendants and the equipment requires no slight qualifications. When to this is added proficiency in pharmacy, nursing and minor surgery it is evident that the government must offer better inducements if it expects to obtain men with the necessary ability.

"The Army Pay bill of 1908 gave increased pay to the various grades, averaging 40 per cent and in some cases as high as 80 per cent increase. It gave the Hospital Corps not more than 20 per cent increase, thus placing it at a decided disadvantage in attracting the best class of privates. All the branches of the army are practically in competition with one another for educated and reliable men. The more intelligent the man, the more carefully he considers and selects the branch of service which offers the best inducements in pay and in opportunity for advancement. In these respects, the Hospital Corps today is the lowest of any branch of the service.

The Surgeon-General of the Army submitted a memorandum to the Chief of Staff, August 3, looking to a modest increase in the pay of the Hospital Corps, an increase rendered necessary by the practical impossibility of obtaining men of any description for this branch of the service. The surgeon-general is held responsible for the health of the army and the efficiency of its medical service.

His opinion is that of an unprejudiced expert. The Chief of Staff of the Army, himself a trained physician of no mean professional attainments, will, we hope, agree with the surgeon-general. There should be no opposition from any quarter to legislation that would remedy an obviously dangerous condition. The American Medical Association, no less than the American Pharmaceutical Association, is interested in the needs of the Hospital Corps of the Army and its members should give such assistance as is in their power to aid in the passage of a bill increasing the pay of the Hospital Corps."—*Jour. Am. Med. Association*.

DRUG QUALITY DURING THE PERIOD 1906-1911.

A. R. L. DOHME AND HERMAN ENGELHARDT.

We have felt that statistical data, based on a continuous examination over a period of six years, of three of the principal crude drugs used in this country, might prove of interest to chemists in view of the growing importance of the Pure Food and Drugs Act. For this reason we have collated the results of the assays and tests of these drugs we have made in the laboratories of Sharp & Dohme during that period of time and present them in this paper. The quality of the wild-grown plants depends largely upon atmospheric as well as upon soil conditions of the country where grown. Thus it is pointed out by a large German drug house that not much could be expected from the forthcoming crop of drugs, inasmuch as but little snow had fallen last winter in Europe, that the roots had in consequence been exposed to severe cold weather, and suffered from lack of moisture in the spring; added to this came an extremely hot almost rainless summer in which the growth of the surviving plants was greatly retarded. As but few crude drugs are cultivated as yet anywhere in the world, these uncertainties in extent of crop, and quality of product will continue until such time as raising crude drugs will become as much a business as raising cereals or fodder. The efforts now being made by the Bureau of Plant Industry of the Department of Agriculture under the capable guidance of Dr. Rodney H. True will, if continued, soon make this country more or less independent of other countries in many drugs as well independent of failures of crops or poor climatic conditions. We cannot refrain from expressing the hope that something be done to eliminate the largely used drug Golden Seal from the itching palms of money lenders, because it can truly be said of this drug that it is in the hands of a trust and an unscrupulous one at that. To think of being compelled to pay four dollars and more a pound for a wild and freely growing plant indigenous to this country when it can easily and profitably be raised for less than a dollar a pound, only accentuates the fact that the Sherman law may even be made applicable to crude products of nature. Below follow the results obtained by us in the examination of samples of the drugs offered us by dealers and gatherers in this and other countries.

The samples of *Aconite Leaves*, a drug which is very seldom used, and which, consequently, has been deleted from the U. S. P., showed up very well, only one

sample was below the usual strength (about 0.4%), assaying only 0.24% of ether-soluble alkaloids.

Aconite Root. This drug did not vary very much in the percentage of ether-soluble alkaloids.

Asafetida. It seems to be extremely difficult to obtain a drug which answers the requirements of the U. S. P. The following figures speak for themselves.

	1906	1907	1908	1909	1910	1911 (up to 10/1)
Samples and shipments examined.....	1	1	28	31	40	18
Deficient in alcohol solubility.....	1	0	8	17	24	13
Excess of ash.....	1	0	18 (64.5%)	20 (64.5%)	34 (85%)	17 (95%)
Deficient in alcohol solubility and excess of ash.....	1	0	9	15	23	13

From the above table it is clearly shown that the allowance of more than 15% ash, acted upon by the Government, had a great influence on the inferiority of the drug since the number of samples with an excessive percentage of ash during 1908 and 1909 was increased from 64% to 85% and even 95%. That in some years the conditions are very favorable for the growth of medicinal plants while in other years they are less favorable can be shown by the alkaloidal strength of *belladonna leaves* and *belladonna root*. In 1907 and 1908 we had to reject 26 and 26.5 per cent of the samples of *belladonna leaves* submitted, on account of deficiency in alkaloids, and in 1910 even 36%. In 1906 only 14% were of inferior quality, and in 1909, which seems to have been the most favorable year for this drug, the rejections dwindled down to only 5%. The samples examined averaged about forty a year.

The rejected samples of *belladonna root* were more numerous, but this inferiority is due to the excessive standard adopted by the U. S. P. The standard of 0.5% of total mydriatic alkaloids is met only with a limited number of samples. It has, however, been advocated to reduce the standard, and it would be very wise to do so, say to 0.4%. In 1906 53.5%, in 1907 65.5%, in 1908 54%, in 1910 63%, and in 1911 76% of the samples were below the official strength. In 1909 which, as already pointed out, was very favorable for *belladonna*, the rejections amounted to 39.5% only. It may be mentioned here, that all those samples were rejected which did not assay 0.5% or more of total mydriatic alkaloids. A large percentage assayed between 0.4% and 0.5%, and only a few had to be rejected as assaying below 0.4%.

Calabar Bean. This drug assayed during the last two years 0.15% of ether-soluble alkaloids, while in the years previous beans with as high as 0.31% could easily be bought.

Cinchona Calisaya and *Cinchona Rubra.* It is surprising how many samples of *cinchona calisaya* were below the official standard. In 1906 42%, in 1907 38%, in 1908 60%, in 1910 33.2% of the samples submitted assayed below 5% of total alkaloids, and only in the years 1911 and 1909 did the rejections amount to lower figures, 20% and 16.7% respectively. While, however, during the first three years samples with 2% of total alkaloids and even less were not infrequent,

such inferior drugs seem to be no longer present on the market, and only occasionally have samples with 3.5% total alkaloids been found during the last three years. The alkaloidal strength of red cinchona was decidedly higher. All the samples submitted during 1906, 1908 and 1911 came up fully to the official strength, of those submitted in 1907 20%, in 1909 (35 samples examined) 8.6%, and in 1910 10% were rejected.

Coca. This drug assays always in the neighborhood of 1% ether-soluble alkaloids, and very rarely was there an occasion to reject samples. Only during the last year has the alkaloidal strength dropped somewhat, when several shipments assayed only between 0.7 and 0.8%.

Colchicum Root. The conditions up to 1909 seem to have been favorable for the growth of colchicum, only 16.5% of the samples examined being below the official strength, while in 1910 68% of the samples had to be rejected as inferior.

Colchicum Seed. Although the present official assay method gives entirely too high results, as has been pointed out on various occasions, the greater percentage of the samples submitted did not come up to the standard obtained by this method. In 1906 every sample was below the required strength of 0.5% of so-called colchicine. In 1907 50%, in 1908 50%, in 1909 78%, in 1910, 86%, and in 1911 55% of the samples had to be rejected. Apparently a standard of 0.4% would be advisable.

Conium Seed. Almost all the samples answered the U. S. P. strength.

Conium Leaves. Up to date not a single sample has been submitted which contained any appreciable amount of alkaloids.

Cubebs. There was hardly any variation in the percentage of oleoresin in the cubebs examined during the last six years.

Ergot. A distinctly better quality of this drug was put upon the market during the last three years, the rejected samples, i. e., those which contained less than 0.2% of cornutine, amounting to 23%, 26.5% and 16% in 1909, 1910 and 1911 respectively. During the three years previous to this period we were compelled to reject from 66.5% to 70% of the samples submitted. We are as yet unconvinced of the reliability of physiological assay of ergot, in fact, feel that the paper of Edmunds and Hale is self-contradictory. If ergot possesses, as is now generally believed, two distinct and separate effects, due to different active principles, it is clear that no one test, assay or standard can fill the bill. Hence, until we can separate these active principles, and determine each separately, all physiological standards of ergot must be more or less unreliable. Our standardization has always been by the assay for cornutine by Keller's method.

Golden Seal. This drug always comes up well to the official requirements. Samples, however, with 4% and more of hydrastine are not as frequent on the domestic market as in European quarters, where numerous shipments with such a high alkaloidal percentage are quoted. Quite recently a sample had to be rejected which assayed only 2.18% of hydrastine.

Resin Guaiac. Many samples of this drug had to be rejected on account of their insufficient solubility in alcohol. Only in 1911, when 33% of the samples

were rejected, a better quality of the drug could be noticed, in former years the rejections amounted to 50 and even 60%.

Guarana. This drug was always above the U. S. P. standard.

Ginger. The percentage of oleoresin varies considerably, and a standard for this constituent should therefore be established.

Henbane. The conditions of 1910 don't seem to have been favorable for the growth of this drug. In this year, we rejected 63% compared with about 20% in the years previous. The standard adopted by the present U. S. P. is regarded as rather high by several drug dealers. Thus Caesar and Loretz (Halle, Germany,) write in their *Geschäfts-berichte* that it is difficult to supply a drug with such high alkaloidal contents, henbane generally assaying only from 0.05 to 0.07% of total alkaloids.

Ignatia Bean. No material variation in the amount of alkaloids could be noticed in this drug.

Ipecac. Caesar and Loretz (*Geschäfts-berichte*, 1907) write that there was no reason for the U. S. P. to reduce the already low requirement of 2% alkaloids to 1.75%, since a drug with 2.5% was readily obtainable. Drugs of a better quality, therefore, seem to be shipped to Europe, as only a few lots with such a high alkaloidal percentage were offered to us, as may be seen from the attached table:

Year	Samples Examined	2.5% and Above	2-2.5%	1.75-2%	Below 1.75%
1906	12	1	9	2	0
1907	25	1 (2.75)	23	1	0
1908	13	0	10	2	1 (1.7)
1909	10	0	9	1	0
1910	8	0	7	1	0
1911	26	0	11	12	3

Jalap. The quality of jalap has improved, as may be seen from the table below. During the last three years lots with 16 to 20% of resin were not infrequent.

Year	Samples Examined	Below 5%	5-7%	7-8%	8-10%	10% and More
1906	14	1	6	5	2	0
1907	1	0	0	0	1	0
1908	5	0	1	2	1	1
1909	14	0	3	1	1	9
1910	37	2	11	4	2	18
1911	42	7	10	4	9	12

Jaborandi Leaves. The quality of this drug was a constant one. The alkaloidal percentage always was in the neighborhood of 1 per cent.

Kola Nut. This drug, which will be official in the next U. S. P., varies considerably in the percentage of caffeine. Taking 1.5% of caffeine as a fair standard, we were compelled to reject 30% of the samples submitted in 1907 and 1910, and 40% in 1911. The samples submitted in the years previous came up to the standard, but only a limited number of specimens had been examined during this time.

Mandrake. We had no difficulty in obtaining good mandrake root in the years 1906 to 1908. Only during the last three years has the quality of the samples

submitted been very poor. In 1910 only two samples assayed above 4.5% of podophyllin, and in 1911 only one. Samples with 3.5, 3 and 2.75% of resin were not infrequent.

Nux Vomica. About 30% of the samples submitted had to be rejected as assaying below the required amount of strychnine. During the current year all the samples came up fully to the official requirements.

Opium. The variation in strength of this drug was very slight only. We were always able to purchase opium with about 11% of crystallized morphine. In 1906 and 1911 samples were encountered which were below U. S. P. strength, assaying only 8.4% and 7.3% respectively. The latter lot consisted of hard, black balls with a polished surface, such as were reported quite recently by Carles (*Journ. de pharm. et chim.*, 1911, page 343). On the other hand, samples with 14% morphine were not infrequent.

Scopola Root. The percentage of samples assaying below 0.5% of total mydriatic alkaloids amounted to: 1906 none, 1907 50%, 1908 64%, 1909 73%, 1910 40%. It is hardly conceivable that the percentage of proper strength drugs should have dropped so much on account of atmospheric conditions, etc. The poorer quality may be due to the presence of *scopola japonica* in the shipments of *scopola atropoides*, the former assaying as is well known about 0.3% of total mydriatic alkaloids. It seems a pity to drop this drug from the Pharmacopoeia, simply because the physician and the public do not know its name, and that hence there is no demand for it, and it cannot legitimately be substituted for belladonna. In our judgment, it should be given as an alternative in the Pharmacopoeia for belladonna, so that it can legally and legitimately be used for belladonna. Its effect and its constituents are practically identical with belladonna. As it is now, plaster manufacturers must use the higher priced belladonna at the public's expense, while the much cheaper *scopola* is relegated to the scrap heap.

Stramonium Sced. Very little variation was noticed in the alkaloidal percentage of this drug.

Stramonium Leaves. There was no reason for reducing the standard from 0.35% to 0.25%, since shipments with more than 0.35% are easily available. Only very few samples with less than 0.3% were met with. The quality of the drug was almost alike during the six years.

In concluding, we cannot refrain from an expression of high appreciation of the good effect the Pure Food law has had on the quality of crude drugs: spurious and almost worthless specimens being now very rarely met with on the market.

THE RELATIONS OF SUCCESS AND DUTY.

"The workman who drops his tools at the stroke of twelve, as suddenly as if he had been struck by lightning may be doing his duty—but he is doing nothing more. No man has made a great success of his life or a fit preparation for immortality by doing merely his duty. He must do that—and more. If he puts love into his work, the 'more' will be easy."—*William George Jordan.*

Papers Presented to Local Branches

"PATENT MEDICINES"—THE PHARMACIST'S DUTY IN REGARD TO THEM.*

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Doctors and druggists exist for the good of the people. If the services of doctors are no longer needed, if "patent medicines" can cure the ills of mankind more efficiently or merely more economically than doctors can, then the medical profession is a useless parasite upon the body politic and ought to be abolished. And if "patent medicines" are all that is needed to cure the people's ills, then the pharmacist is not required either, for any \$6-a-week clerk or any illiterate peddler can sell them just as well as a learned pharmacist, and pharmacy will have to go the way of the spinning wheel and of the stage coach. Let us face the question fairly and squarely: is the ready-made medicine the next step in the evolution of the treatment of the sick? This is an important and a practical question; for, if this is the case, then let us all get into the "patent medicine" business, before it is too late.

Unfortunately, the "patent medicine" is not the goal toward which modern medicine is tending. For, in the first place, our highest aim as physicians is the prevention of disease. Both public and profession are becoming more and more conscious of this, as is evidenced by the great public health movements that are afoot. In the second place, we have learned, and the people are commencing to realize it, too, that, with very few exceptions, medicines do not cure disease. If there were "specifics" in the homeopathic sense, if for each symptom or symptom group there existed an appropriate medicine, then a booklet containing symptoms arranged in alphabetical order and numbered medicines, like "Humphrey's Specifics" would become the ultimate result of all medical and pharmaceutical learning. But medicines do not act in that way.

Ever since the days of Hippocrates, the scientific physician has known that it is "nature" that does the healing. When a surgeon sets a fracture, all he does is to place the ends of the broken bone in the position they occupied before, and keep them there, while the mysterious forces of nature cause the bone to knit. When a physician administers iron to an anemic patient and the patient gets well, the doctor really cured the anemia no more than a hod carrier builds an edifice. The doctor merely supplied a material that was deficient in the economy. All the learning of the ages has not yet enabled us to make a single red blood corpuscle. The aim of all medical treatment is to aid "nature" in accomplishing the cure; for, while "nature" unaided will do much, "nature" aided by art can do much

*Address delivered at the December meeting of the Chicago Branch, A. Ph. A.

more. In most cases of illness, the physician's role is like that of an experienced guide, while the patient must do his own traveling.

I do not deny that often an appropriate medicine just "touches the spot" and gives relief; but relief is not cure; and the devising of "spot-touching" medicine is about as easy or as difficult as shooting a bird on the wing. Would a blind man have a better chance to hit the mark than a trained sharpshooter?

We have a few, unfortunately, very few, true specifics, that is medicines which in a special and unmistakable manner favor the cure of disease. One of these, for instance, is iron in certain forms of anemia. But giving iron in anemia is not the physician's highest function. The iron in "Williams' Pink Pills for Pale People" will do as much. The physician's business is to find the cause of the anemia; and, when the cause is removed, the anemia is soon at an end. In quinine we have an agency that has a special destructive influence upon the malaria organism. Yet, even here it requires skillful use of the medicine; or, else by excessive dosage, we may harm our patient, or by insufficient dosage develop in our patient a breed of malaria parasites that are immune to quinine, thus rendering our patient incurable by that drug. Similar are the relations of mercury to syphilis and of salicylate to acute articular rheumatism. It requires training and skill to assist most efficiently in the extermination of the invisible foes that infest the body. Diphtheria antitoxin converts this dreadful disease into a mild malady. But many a patient misses his chance for recovery by temporizing with patent medicines, such as "Tonsiline," which latter, though it might cure the sore throat in a giraffe, often fails to do so in the short neck of a child. Because any sore throat may be diphtheria, when a person comes to a druggist asking for something for a child's sore throat, the druggist ought to advise to have a doctor see the case. Newspapers instead of advertising "Tonsiline," or, at least, underneath each such ad., should caution their readers not to neglect a sore throat, especially not in a child, but to have it examined by a reliable physician.

From a therapeutic standpoint, "patent medicines" may be classified under the following headings: (1) Inert materials; (2) poisonous agents; (3) good enough medicines for the right case.

Inert materials owe their efficiency to the faith with which the patient takes them. One of the business tricks of the quack and of the nostrum maker is to get the victim to think that he has a disease that he does not have, and then to cure him of that idea by a placebo.

"Munyon's Kidney Cure," claimed to "cure Bright's disease, gravel, all urinary troubles, and pain in the back or groin from kidney disease," is said to be nothing more or less than pills weighing 0.6 grain and composed of 100% white sugar. No trace of any medication could be detected.

"Plantoxine," which is advertised as a "corrective for abnormal conditions of the system which create undue susceptibility to miasmatic diseases, plant pollen, lagrippe, etc., chronic malarial diseases, hay fever, hay asthma, rose cold, etc., influenza and lagrippe," has been alleged to consist entirely of milk sugar. Selling sugar of milk, worth wholesale about 10 cents per pound for about \$6 retail apparently converts it into a most potent remedy, provided a sufficiently strong claim is made about its potency. (From "Nostrums and Quackery," published by the American Medical Association.)

Fraudulent as are such preparations, they are superior to the next class of "patent medicines" to which I wish to call your attention, namely those that contain poison. Most nostrum makers want to put a really good medicine upon the market, one that gives immediate relief. To produce such effect a potent drug is required. Now it is unfortunately true that all potent drugs are capable of acting as poisons. It is really only a narrow line that divides the medicine that helps from the poison that harms.

The tar barrel has yielded to medicine a series of most remarkable pain relieving agents in acetanilide, acetphenetidin, and antipyrine; and now these substances are used to an enormous extent for the relief of the aches and pains of mankind. Nearly every druggist has his own headache cure, nearly every one of the headache nostrums contains one of these drugs, and doctors prescribe them very extensively. Now why should we condemn their use without a physician's prescription? Let me cite to you their death and poisoning record, up to July 31, 1909, as published in the Journal of the American Medical Association of that date. Doubtlessly there are many more cases that have not been reported:

	Poisoning	Death	Habitual Use
Acetanilide	911	29	144
Antipyrine	593	15	7
Acetphenetidin	165	10	18

These agents are poisons to the blood and to the circulatory system, and certain people have a strong idiosyncrasy against them. When a doctor prescribes them, they are safer, because he can usually detect signs that would warn him of the presence of idiosyncrasy; and then, if he is a doctor worthy of the title, he will do everything in his power to determine the cause of the pain, so as to free the patient from the necessity of taking the drug. Pain is a danger signal. We must not remove the pain, without, at the same time, removing the danger.

Opium is king over all pains and distresses. The Easterners print upon their cakes of opium: "Mash Allah" (the gift of God). And so it is, one of the choicest gifts of God, if properly controlled. But when it escapes that control, it becomes a gift of the devil. Not only is there the danger of the opium habit, but the very power of the drug to give relief is one of its greatest dangers. Nothing is easier than to temporarily stop a cough with an opiate or to check a diarrhoea. But cough and diarrhoea are usually salutary natural reactions. They exist for the purpose of removing irritating material from the body. Lock up that material, and you aggravate the irritation of the diseased membrane. Druggists, if you must put up your own cough cure or diarrhoea drops, leave out the opiate from your formula! What should we say of the fiend, who beguiles the tired mother into narcotizing her babe with opiate "soothing syrups," thereby slowly but none the less surely undermining life at its very foundation? Would it be too much of a sacrifice to professionalism, for you pharmacists to refuse to carry in stock any "patent medicine" containing opiate?

As the law of Illinois now prohibits the sale of cocaine-containing nostrums, it is not necessary for me to say much about these here. Am wondering whether this law caused any appreciable diminution in the income of the drug trade. It surely must have caused a diminution in the number of cocaine fiends.

I am unable to tell from experience to what extent the liquor habit is induced,

aided or abetted by alcoholic nostrums from Hostetter's down to Peruna and Lydia Pinkham's. Perhaps not to any great extent in this town, where people have no difficulty in obtaining liquor in pure form. But I am assured that in temperance towns these things have quite a sale and that useful lives are wrecked by them that would not have succumbed to liquor because of prejudice against the latter, and the prevalence of the idea that "medicine" is good for a person; and if a little is good, more ought to be better.

A third class of nostrums may be recognized, good enough for the right case, but liable to do harm by getting to the wrong case. In the treatment of coughs, for instance, several stages must be recognized. There is the stage of dry cough that needs loosening up; later the secretion may become excessive and need drying up. And, what is still more important, many a case of consumption starts with a simple cough; and, by temporizing with various cough medicines, these patients lose valuable time, converting a curable case into an incurable one. In diarrhoea, there is a stage when evacuant treatment is indicated, and a later stage when astringency may be needed. Throughout, the proper dietetic treatment is of first importance. Constipation is caused rather than cured by cathartics. To the layman, a good cathartic means one that will produce profuse evacuation of the bowel. Such an action sweeps out of the alimentary tract in one day an amount of fecal matter that usually requires two days for removal. Thus there can be no bowel movement on the second day. And because he had no evacuation this day, the patient takes a cathartic; and this repeats itself indefinitely, the patient becoming a slave to the cathartic pill. The treatment of constipation needs change of habits and change of diet, in first place; and the mildest possible cathartic in progressively reduced dosage, in second place; and, if the dose of the cathartic cannot finally be discontinued, recourse to massage, gymnastics and electric treatment. A skin disease or an affection of mucous membrane may need soothing treatment or stimulation, mild or severe. There is no possibility of a single remedy suiting all cases of even the same kind of disease.

"Patent medicines" then are erroneous in principle and often disastrous in their results; though, of course, occasionally they are beneficial. They have the same advantage over the physician that the quack has: namely, that the physician is expected to cure; if he fails, everybody is told of it; when, on the other hand, "patent medicines" fail, no one hears of it, because the patient is ashamed of having been foolish enough to resort to them; if, however, he gets well, no matter whether because of or in spite of the "patent medicine," it is such a wonderful thing, that he tells everybody of it and cheerfully writes a testimonial. In their claims all "patent medicines" are fraudulent; for, if the nostrum makers confined themselves strictly to the truth in regard to the efficiency of their preparations, they could not get great results from their advertising.

I admit that the "patent medicine" fills a want, or else it would not exist. I can see how a poor person taken with what seems to be a minor ailment would seek relief in a 25-cent bottle of "patent medicine" rather than pay \$1.00 for a doctor's consultation and 50 cents to the pharmacist for the medicine. And as long as conditions are such, the "patent medicine" will continue to exist; and druggists will have to sell them. However, it seems to me that pharmacists can do a good

deal to mitigate the evils arising from their use by adhering to the following principles, which I herewith respectfully submit to your consideration:

1. By resolutely refusing to carry in stock any nostrum containing poisons, especially habit producing poisons. The requirements of the "pure food and drugs act" make it easy to decide which nostrum would come under this heading.

2. By refusing to permit himself to become a nostrum manufacturer or to enter into partnership with one. For, knowing as he does, that it is impossible to be successful in this business without practicing fraud or foisting poisons upon the people, and doing them an untold amount of harm, the pharmacist as an honest partner of the physician in efforts to alleviate suffering and prevent disease, will not soil his hands with money obtained by dishonesty or at the expense of human suffering.

3. By not pushing the sale of "patent medicines" or advertising them in his store windows or upon his fixtures. For, recognizing the fact that "patent medicines" are at best makeshifts, often dangerous ones, it is derogatory to the dignity of the pharmacist as a scientific man to give them his endorsement, which advertising the article certainly means. Indeed, it is not a high compliment even to the business ability of the druggist to have him use his valuable window space to push the sale of articles upon which he makes a minimum profit, instead of using it for the promotion of the sale of goods that yield better returns.

4. By not joining the ranks of "price cutters." For, as I see it, price cutting on "patent medicines" merely means that, as there is very little profit in them anyway, a dealer sacrifices all the profit in order to make more on other goods he hopes to sell to the same customer. What matters it, if the price cutter sells more "patent medicines" than you do, if the people come to appreciate you as a professional pharmacist? For professional services people always pay well and pay it gladly.

Ladies and gentlemen, the motto of this great association, of which I am proud to be a member, is not a mere dream: "*Pharmacia vera prevalebit*," True pharmacy will prevail.

THE NECESSITY FOR A PHARMACOPŒIAL SUPPLEMENT.*

GEORGE H. MEEKER, PHAR. D., LL. D.

The ideal of all professions is to achieve for every member ethical and scientific excellence. Volumes might be written in defining these professional goals; but after all the spirit of the ethical is merely the "golden rule," while science is essentially the "knowledge of why"—the former satisfies the conscience; the latter, the reason. If within any profession some elected or self-constituted group of members should assert the right of a star-chamber censorship over the consciences and reasons of the members, such right would be promptly repudiated—royal prerogatives having no place in democratic science.

Yet it might be quite possible that unconsciously and by insensible degrees a

* Read before the Scientific Section of the Philadelphia Branch.

profession should drift into the foregoing deplorable relationship with one of its committees; and such is believed to be the actual state of relations between the pharmaceutic profession and the revision committee of the United States Pharmacopœia. Let at once be disclaimed any suggestion that the revision committee has either deliberately compassed undesirable conditions or that it would strive to perpetuate any recognized wrong. The point of view is merely that, while the work of the revision committee is on the whole most admirable and praiseworthy, yet a wrong does exist and should be recognized and remedied. This wrong is that the revision committee establishes the various standards of the Pharmacopœia, but does not deign to furnish the public and profession with anything more than fragmentary and casual reasons for these standards. While the committee confers with many manufacturers and scientific specialists, the profession as a whole neither participates in these conferences nor has ready access to the facts. Such a course is not only unwarrantable as noted above, but also dangerous and unjust.

It is high time for the revision committee to avail itself of the authority given it by the following resolutions of the National Convention of 1900:

"Resolved, That the Committee of Revision be authorized to prepare, and the Board of Trustees be authorized to publish, a supplement to the United States Pharmacopœia, if in the opinion of the Committee of Revision it be deemed advisable."

Let the revision committee issue a supplement to the Pharmacopœia arranged so far as practicable similarly to the Pharmacopœia itself and setting forth serially its *reasons* for the official standards. There would be ample sale of the book to meet the expenses of publication; and one of the greatest wrongs of American pharmacy would be righted. Any objection that such a volume would be too large is invalid. It would require no great skill by intelligent arrangement of the contents of the Supplement, and by exclusion of unessentials, to produce a volume of approximately the same bulk as the Pharmacopœia. The first issue of the Supplement would doubtless have many faults to be gradually eliminated in subsequent issues. Upon the issue of the Supplement would begin a new era in pharmacy. No longer would the profession and the public be compelled to accept pharmacopœal standards blindly. Every one would work in the light; and the intelligent and active criticism made possible would rapidly improve the Pharmacopœia and eliminate the existing opportunities for special privileges.

How humiliating it is to a pharmacist, when, as a professional man, he is forced to admit that he is ignorant of the reasons for his own standards—since a certain committee sets his standards for him and fails to furnish him with a statement of the conditions which dictated these standards. Would not the American public, which recognized the United States Pharmacopœia in Sections 6 and 7 of the Federal Foods and Drugs Act of 1906, feel that it had been treated disingeniously if it awoke to the fact that it had placed the drug standards of 95,000,000 citizens under the star-chamber control of a group of men who are independent of the American electorate and who do not even take the profession into their entire confidence? Does any one believe that with a full knowledge of these circumstances, the Supreme Court would sustain the Federal Foods and Drugs Act of 1906 in so far as concerns its recognition of the United State Pharmacopœia?

Failure to sustain would mean that there would be no legal standards; and pharmacists would be themselves to blame. The public has overdone its part in the effort to produce correct standards for the drug traffic. Let us hope that without edicts from the profession the Pharmacopœial Revision Committee will see and perform its duty in the premises.

As the matter stands today, the knowledge of the profession concerning the "purity rubric" is lamentably vague; and is practically confined to the dogmatic provisions of the main body of the Pharmacopœia—as inadequately elucidated by the preface and introduction to the work. The Pharmacopœial preface is admirable as far as it goes; but it should go much further. If the preface to the U. S. P. gave all the information that the public and profession have a right to know, then it would fill the place of the Supplement which is herein advocated. Thus, when its preface tells us that the Revision Committee has adopted the ruling of the Brussels International Pharmaceutic Congress to the effect that potent tinctures should refer to a preparation from ten per cent of active constituent, we have the sort of knowledge that it is our right to have with respect to all other provisions of the U. S. P. Unfortunately, however, we must usually content ourselves with the statement that the standards adopted are those which the Revision Committee consider best for us to have. Diligent search of the Pharmacopœia for real *reasons* for pharmacopœial standards will be found most disappointing.

We do, however, find a few facts that cast light upon the "purity rubric." Thus we are told that the United States Pharmacopœial Convention is incorporated for

"The particular objects and business of * * * establishing one uniform standard and guide for the use of those engaged in the practice of medicine and pharmacy in the United States whereby the identity-strength, and purity of all such medicines and drugs may be accurately determined."

The Pharmacopœial Convention instructing the Revision Committee with respect to the purity and strength of pharmacopœial articles, says:

"The Committee is instructed to revise as carefully as possible the limits of purity and strength of the pharmacopœial chemicals and preparations for which limiting tests are given. While no concession should be made toward a diminution of medicinal value, allowance should be made for unavoidable, innocuous impurities or variations due to the particular source or mode of preparation, or to the keeping qualities of the several articles. In the case of natural products the limits of admissible impurities should be placed high enough to exclude any that would not be accepted by other countries.

"Regarding the strength of diluted acids, tinctures and galenical preparations in general, it is recommended that the Committee keep in view the desirability of at least a gradual approach upon mutual concessions toward uniformity with similar preparations of other pharmacopœias, particularly in the case of potent remedies which are in general use among civilized nations."

The Revision Committee itself informs us that

"The purity standard, or purity 'rubric' * * * is placed * * * immediately before the description, and * * * defines the percentage of small quantities of permissible, innocuous impurities which do not materially affect medicinal action or interfere with pharmaceutical uses. * * * the standard * * * represents what the Committee believes to be obtainable, and which, on the other hand, will not prove burden-

some or impossible for the manufacturer to produce without adding unnecessary and excessive cost to the consumer."

With the foregoing meagre generalities the profession is left to draw its own conclusions—some of which will doubtless be correct; but all of which must be uncertain. But the scientific mind is not and never can be content with mere conclusions. Its demands are ever for a knowledge of the premises upon which the conclusions were based—so that it can check the conclusions and accept them upon their merits or revise them if they be found faulty.

A REVIEW OF THE CHEMISTRY OF DIGITALIS.*

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Digitalis plays such an important part in our present day medicine that its chemistry should be well worked out. If one should read but one report, it would so appear, but the deeper one probes into the results of chemical investigation, the more confused he becomes and finally finds himself unable to decide positively of what it really does consist.

Tracing the steps of its investigation, we find in 1820 it was examined by Pancquay, in 1824 by Lancelot and in 1834 by Leroyer; also about this time it was studied by Homolle and Quevenne. Both Leroyer and Lancelot described a crystalline principle, while Homolle and Quevenne claimed its active principle to be amorphous. In 1868, Nativelle isolated a crystalline principle, but he later thought this to be a compound body. In 1871 Schmeideberg^a and Killiani independently took up the work and each isolated a crystalline principle which they called *digitoxin* and it appeared that this was the same principle described by Nativelle. For some time this substance commonly known as *digitalin* was the only principle known and a number of substances classed as both scientific and commercial were exploited under that name.

It soon became evident that these products were mixtures, also that digitalin was not the only active constituent, and further effort by Schmeideberg produced the isolation of four glucosids, namely *digitonin*, *digitoxin*, *digitalin* and *digitalein*, and he proved also that the digitalin of commerce consisted of various mixtures of these glucosids. He found it difficult to obtain these glucosids in a pure state on account of their easy decomposition. In the years between 1892 and 1899 Killiani confirmed this contention of Schmeideberg, and increased our knowledge of digitalis by information relative to the decomposition products. Work along similar lines during the same and following years has been done by Keller, Cloetta, Boehm, Bargar and Shaw, Brissemoret and Joanne and others though the principal authorities still are Schmeideberg, Killiani and Cloetta. At the present time on account of the complexity of digitalis and the ease with which its constituents decompose it is difficult to isolate them in a pure state, and we are compelled to say "we believe" rather than "we know."

According to Schmeideberg and Killiani, we have the following constituents:

* Read before the Scientific Section of the Philadelphia Branch.

digitoxin, digitalin, digitalein, digitophyllin, digitonin, digitin, digitoflavin fixed oil, volatile oil, starch, gum, sugar, inosit, pectin, red and yellow coloring matter, digitalosmin (stearopten), antirrhinic acid, digitalic acid, and in fresh leaves an oxydase,^b a ferment, as well as decomposition products, such as digitoxase, etc.

Digitoxin $C_{34}H_{54}O_{11}$ (Killiani) is present in the largest quantity, the yield from the leaves varying from 0.22 to 0.4%, the average according to Ceasar and Loretz in the analysis of forty-seven samples being 0.25% and according to Kain 0.30%. The yield from the seeds is much less and Killiani questions if it is present at all. Schmeideberg is doubtful as to the character of this product, but Killiani claims that it is a glucosid. It is insoluble in water, but somewhat soluble in the presence of other glucosids particularly digitonin. It is readily soluble in alcohol and chloroform, but is insoluble in ether, and Keller and Panchaud claim it is precipitated from a chloroform solution by means of ether. It readily splits up into *digitoxigenin*, which is soluble in water, *digitoxan*, a sugary body, and glucosid called by Schmeideberg, *toxiresin*. This hydrolysis takes place best in alcoholic hydrochloric acid solution. Digitoxin (crystal) is claimed by Petit and Polonowski to be identical with the French commercial product, *digitaline* of Nativelle. Digitoxin (crystal Merck) is claimed also to be the same qualitatively as *digitaline*. Digitoxin amorphous soluble, is claimed by Cloetta as an isomer of digitoxin crystal, but it is found in small amounts only in the leaves and is thought to be *digalin* or a mixture, but certain claims of Killiani as to its being a mixture, largely digitalein has not been proven by experimentation.

It appears that digitoxin is the most abundant and important constituent and is found in both the leaves and the seeds, but only in small quantity in the seeds.

The commercial articles are generally not of great reliability on account of their being mixtures and hence not capable of standardization.

Digitonin was first obtained in a crystalline condition by Killiani, by extracting the commercial German digitalin, of which it is the largest ingredient, with a mixture of absolute alcohol and chloroform and then precipitating by the addition of ether. It has a formula $C_{54}H_{92}O_{28}$ (Killiani). It is classed as a saponin, holds digitoxin in solution and breaks down into digitogenin, dextrose and galactose (Cloetta). Killiani claims that the decomposition products are sapogenin (similar to digitogenin) and a mixture of glucose and galactose. Digitonin crystalline (Killiani) and digitonin amorphous (Schmeideberg) are entirely different substances, but Cloetta^d after extensive study thinks this difference is largely due to the impurity of the product of Killiani.

Cloetta, Kellar and Killiani all found digitonin in both leaves and seeds. Killiani claims that the seeds contain a considerable amount, but the leaves very little. Digitonin is said to be a saponin, and as such it assists in holding other constituents in solution.

Digitalin $C_5H_8O_2$ ^{d-e} as isolated by Homolle was later found to be a mixture of digitalin, digitoxin and digitogenin and is non-crystalline. The so-called digitalin is a mixture of digitalein and digitonin, digitalin and digitoxin. It is a commercial preparation usually amorphous in character and is soluble in

water and alcohol. Digitalin Nativelle is a crystalline product and consists largely of *paradigitogenin*.

Digitalinum Verum is the main constituent of the seed, and if present in the leaves is in very small amounts. It has a formula $C_{35}H_{56}O_{14}$ (Killiani) and is thought to be present in 3 to 4% in the plant. It decomposes so readily into digitalogenin and digitalose that its percentage is hard to determine. It is usually amorphous in character. It is insoluble in chloroform and water but soluble in alcohol. Schmeideberg says it is identical with the digitalin glucosid and is essentially the same as the others mentioned as commercial products.

Digitalein (Schmeideberg) is a mixture of digitoxin, digitonin and digitalein and is present in considerable quantity in commercial digitalins. It is distinguished from digitalinum verum by its solubility, since it is soluble in water and alcohol. It is described as a yellow amorphous mass although it is also claimed that there are two kinds, namely, the amorphous and the crystalline. It has properties similar to a saponin, assists in the solution of other principles and in a water solution it foams and rapidly becomes sour. It is, however, not well characterized.

The other principles of digitalis are of less importance, and to some extent also less understood. The opinions are held, however, that digitophyllin has a formula of $C_{32}H_{52}O_{10}$, is a modified digitoxin and is found only in the leaves.

Digitin is considered by many to be the same as digitonin.

Digitoflavin b $C_5H_{10}O_6 + H_2O$ is not well known, but is thought to play a part in the coloring of the plant.

The commercial products are quite well known and need no special consideration here. It need only be said that while many claims are made for each, that they are not well characterized substances, cannot be well standardized and hence should be handled with much caution.

The methods of assay are mainly based on the content of digitoxin, but since the other principles so largely modify the action of digitalis, this would seem to be unreliable.

The method most used is that of Keller^f which is based entirely on this principle and is dependent upon the solubility of this principle in 70% alcohol. The sample is extracted with alcohol, the alcohol is evaporated, the residue is diluted with water, this solution is precipitated with lead subacetate, the excess of lead is removed by sodium sulphate and the filtrate is made alkaline with ammonia. This is extracted with chloroform, purified with petroleic ether and later with alcohol and ether.

Fromme^g modifies this method slightly in the original extraction and Staeder^g proposes a different method which is found in *Phar. Zeit.*, 1901, vol. 45. Chemical assays, however, seem to yield poor results, and when checked by physiologic tests the two methods do not give comparative results. Zeigenbein,^h Bühner,^e Bargar and Shaw,ⁱ Reed and Vanderkleed,^j and others have performed these tests, and while the latter obtained results more nearly alike, yet they all seem to prove the inefficiency of our present assay methods in determining accurately by chemical assay the active constituents. Moreover, Bargar and Shawⁱ made up solutions with known amounts of digitoxin and state that they could isolate only 25% of that known to be present. Other authors have obtained

better results but apparently far short of the true amount. It would seem therefore that a large amount of chemical investigation is a necessity before digitalis can be properly standardized by chemical analysis alone, and a vast field of chemical research lies before us.

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THE MANUFACTURE OF COAL TAR AND COAL TAR PRODUCTS.*

GEORGE MCDERMAND.

About ten years ago the Denver Gas and Electric Light Company saw the possibilities of manufacturing and selling coal tar products in Colorado and the Western States. A plant was erected and roofing and paving materials manufactured. In a few years the sales were so great, with the demand for the products steadily increasing, it became imperative that a larger plant be constructed. The result was that a modern up-to-date tar plant with a large capacity and equipped to go more thoroughly into the manufacture of these compounds was erected. The amount of tar worked up into salable material by this plant is 100,000 gallons per month.

Coal tar is obtained during the process of gas manufacture. It is collected from the hydraulic mains and gas condensers, and after passing through a separator to relieve it of ammonia liquor, is stored in large wells until used in the manufacture of tar products.

Coal tar mixed with tar oils is extensively used as a paint for iron work and is used on the bottom of ships to keep them free from barnacles. It is also used for painting roofs, wooden buildings, fence posts, etc. Tar paint is an excellent wood preservative, as it contains a large amount of creosote. Paints that are composed of coal tar are very durable owing to the fact that tar is non-corrosive and free from oxidation.

Coal tar without water content is used in manufacturing tarred felt. Modern saturating machines convert the dry felt into uniform rolls of tarred felt. The roll of dry felt is placed on a spindle at the end of the saturating machine; it is run down into a saturating tank about five feet and is kept in the tar by an idler; after coming from the tar it is run between two rolls, where the surplus tar is pressed out, from which it is wound on a spindle until the roll becomes approximately fifty pounds. It is then taken off and seasoned in a warehouse, which takes about a week, before being wrapped and labeled.

* Read before the Denver Branch.

Four grades of tarred felt are manufactured at this plant. The heavy grade, No. 1, weighs twenty pounds to the square; the next heaviest is No. 2, weighing seventeen pounds; the medium grade, No. 25, weighs fifteen pounds; and the lightest, No. 22, thirteen pounds to the square.

The distillation of coal tar is carried on in stills with a capacity of about 5,000 gallons each. During the distillation the following fractions are made:

The oil collected up to 110°C is first light oil.

The oil collected from 110°C to 210°C is second light oil.

The oil collected from 210°C to 240°C is carbolic oil.

The oil collected from 240°C to 270°C is creosote.

The oil collected from 270°C to 360°C is anthracene oil.

In our plant the highest temperature reached is 270°C , as this produces a pitch which is the most universally used in this territory for roofing and paving purposes. On especial occasions, we make a harder grade of pitch for sealing dry cell batteries. The distillation as carried on here is as follows: The first and second light oils are run in one fraction. The carbolic and creosote oils in another. Only two fractions are made. The oils are then redistilled, which will be explained later.

The pitch is graded by suspending a cubic half-inch of pitch on a wire in a beaker of water one inch from the bottom, and thermometer is suspended with the bulb on a level with the center of the cube. The temperature is brought up five degrees per minute with a Bunsen burner. When the cube melts and just touches the bottom of the beaker, the temperature registered on the thermometer is the melting point of the pitch.

The grades of pitch made by this company are bituminous cement, road binder, waterproofing cement work, winter and summer roofing, expansion joints, block paving, and cement for dry cells. Three grades of dust laying tar are also made.

The gravel roof, which is laid of coal tar pitch and tarred felt, has become the most universally used roof on substantial buildings throughout the whole country; it is practically without competition. The United States Government specifies the gravel roof on all Federal buildings. The gravel roof has proven so successful, after many years' use, owing to its being waterproof, fireproof, elastic, and its long life, being suitable to all climates. The demand for material for gravel roofs has become so great that tar plants dispose of great quantities of their coal tar in manufacturing this material. In building a gravel roof, contractors first lay a ply of dry felt or building paper, which is followed by from four to six plies of tar paper, each ply being mopped sufficiently with coal tar pitch so that in no place does tar paper touch tar paper. When these plies of paper are laid, the surface is mopped over with pitch, and for protection, gravel is evenly spread on top of the hot pitch. These gravel roofs last approximately twenty-five years without repair.

The light oils obtained during the distillation of coal tar contain carbon bisulphide, benzol, toluol, xylol, coal tar naptha, and burning oil. It is used in paints as a general solvent.

The creosote oil contains carbolic acid, naphthalene, ortho, meta and para cresol. This oil is used as a wood preservative, disinfectant, spray, sheep and cattle dip;

it is also used in shingle stains, iron and wood preserving paints. Large drug and paint houses in San Francisco, Seattle, and Portland use it in carload lots.

Napthalene is found in all the fractions, to a certain extent.

Benzol is used as a varnish remover, in paints, and for dissolving resins. It is the source of a great many products. Many colors are produced from benzol.

Nitro-Benzol, known as oil of bitter almonds, and under the name of oil of mirbane, is used to perfume soap. It is prepared by adding a mixture of nitric and sulphuric acids very slowly, to benzol, keeping the temperature low; after the acid is all added, it is washed several times with water; then purified by distillation. It has the formula of $C_6H_5NO_2$.

Aniline— $C_6H_5(NH_2)$, is prepared from nitrobenzene by a mixture of iron filings and hydrochloric acid, when the chlorides of iron and aniline is formed. The aniline is liberated by an alkali and is separated by distillation.

Aniline is a colorless liquid possessing a peculiar odor. When an aqueous solution of an alkaline hypochlorite is added, a violet coloration is produced.

When nitrous acid is allowed to react on aniline nitrate, diazobenzene nitrate is formed. This compound is a colorless crystalline substance which explodes on percussion or when heated. These salts when boiled with water decompose. Nitrogen is liberated and the group HO replacing N_2 forms phenol.

Aniline yellow is produced by the action of nitrogen trioxide in an excess of aniline, and heated in the presence of a salt of aniline. A great many more colors may be produced.

Benzylamine is obtained by the action of ammonia on benzylchloride. It is a true amine and gives rise to corresponding secondary and tertiary amines.

Benzyl alcohol $C_6H_5CH_2(OH)$ is obtained by the action of alcoholic potash on nitro benzol. Oxidizing agents convert it into the aldehyde C_7H_6O , and lastly, into benzoic acid.

Quinol, or hydroquinone, is prepared by dry distillation of quinic acid and by the moderate oxidation of aniline.

Acetanilide is formed when aniline is boiled with acetic acid or its anhydride.

Phenol: The creosote here contains about 23 per cent carbolic acid and 35 per cent of the three cresols. This creosote is used to a large extent as a disinfectant and sheep and cattle dip, the creosote being suspended in a rosin soap.

Our commercial cresol contains about 34 per cent carbolic acid and 66 per cent of the three cresols. It is known to tar distillers as carbolic oil No. 1 and No. 2, according to the number of times it has been distilled. Disinfectant manufacturers know it under the name of cresylic acid.

The creosote is distilled in an especially constructed still, the fraction between $170^\circ C.$ and $210^\circ C.$ is collected and redistilled.

Cresylic acid rapidly becomes discolored in the light. It is used as an insecticide and germicide and suspended in a neutral linseed oil soap as a sheep dip, having twice the strength of the creosote dips.

Carbolic acid is produced by agitating the carbolic oil with a 10 per cent solution of caustic soda, neutralizing the sodium in the sodium phenate with a 10 per cent solution of sulphuric acid. The phenol is then separated from the water and distilled, the portion distilling within a few degrees of $182^\circ C.$ is subjected to a

freezing mixture when crystals of phenol form. This process in some cases is repeated several times.

Salicylic acid is produced by dissolving phenol in caustic soda, then passing carbon dioxide into the dry salt which is slowly heated up to 180° C. Salicylic acid on being heated breaks up into phenol and CO_2 .

Phenolphthalein is formed by heating phenol with phthalic anhydride and sulphuric acid.

Phthalic acid is produced by the oxidation of naphthalene and crystallizes from hot water in large prisms. It is decomposed on distillation into phthalic anhydride and water.

Picric acid is formed when phenol is acted upon by nitric acid.

Naphthalene moth balls are produced by distilling crude naphthalene with 5 per cent sulphuric acid; the purified naphthalene is then formed into balls.

Alpha and Beta naphthol are used in preparation of colors; thus, the sodium compound of a dinitronaphthol is known as naphthalene yellow.

By the action of concentrated sulphuric acid, naphthalene yields two isomeric sulphonic acids of the formula $\text{C}_{10}\text{H}_7\text{SO}_3\text{H}$.

Between the temperature of 80° C. and 100° C., the alpha modification is produced, while at 160° C. to 170° C., beta naphthalene-mono-sulphonic acid predominates. On diluting the solution with water and saturating it with lead carbonate and filtering from the insoluble lead sulphate and excess of lead carbonate, the lead salts of the two sulphonic acids are obtained in solution. They are then concentrated and crystallized, forming naphthalene-sulphonate; when this is fused with caustic potash, a substitution of OH for SO_3 occurs, forming the variety of naphthol corresponding to the sulphonate employed. When this fused mass is dissolved in water and filtered, the solution is treated with hydrochloric acid, when the naphthol is precipitated. There are other ways of obtaining naphthol.

Beta naphthol refluxed with wood alcohol produces a perfume with the scent of cassia blossoms, and when refluxed with grain alcohol, produces the scent of orange blossoms.

LEGALIZED ADULTERATION OF FOODS AND DRUGS.*

CHARLES M. FORD.

It would be too much to expect that the Federal and state laws for regulating the manufacture and sale of foods and drugs could, in the short period of their existence, have accomplished all that was hoped for, by the champions of so fundamental and far-reaching a reform.

It was not possible, and is not now, to provide in the letter of the law for the detection and punishment of every form of adulteration and misbranding; although in the past five years we have learned how, in several important ways, to amend the Federal Act.

Even when amended in accordance with all the views of wise, vigilant and honest exponents of pure drugs and healthful foods, it would be still general in

* Read before the Denver Branch.

its character, leaving much to interpretation, regulation and administration by those intrusted with its enforcement.

It is not within the range of human possibilities to make the law so broadly specific as to reach every cunning evader or violator. Sufficient latitude and discretion must be allowed the officials charged with its enforcement to cope with those individuals in the community, who would for profit engage in the traffic of adulterated foods and drugs.

In the exercise of this discretion, granted by law to Federal and state officials lies the crux of the pure food and drug situation; and is found in the set of regulations adopted by the United States Department of Agriculture, and the Food and Drug Departments of the various states. These officials are in duty bound to yield as much to the demand of big and little business as the lives and health of the nation will permit; to be generous to one without being unjust to the other.

Courts and other officials are naturally lenient in the enforcement of a law providing punishment for acts hitherto not within the purview of law.

This leniency is observed in the nominal fines imposed by Federal courts for the many flagrant and vicious violations of the Food and Drugs Act, since its enactment. It is a comforting sign, however, to see our high courts so considerate and charitable.

But the leniency shown by the Executive Department of the Government is giving cause for alarm. Congress in its tender regard for the country's business interests, decreed that the Act of June 30, 1906, should not be operative until January 1, 1907. A six months' respite was thus granted the traffickers in adulterated and misbranded foods and drugs.

The Colorado Act of March 7, 1907, was not effective until January, 1908, giving immunity until the latter date, from both Federal and state laws, to those conducting their unlawful operations within the state.

These liberal periods of immunity prove not to have been sufficient for disposing of the quantities on hand of adulterated foods and drugs; in fact, it is well known that the production of such goods was continued and the kind heartedness or cupidity of officers of the law relied upon for procuring further time. That the faith of the business interests was not misplaced is shown in concessions granted for the continued use of foods containing copper and tin salts, sulphur dioxide, sodium benzoate, saccharin, talcum and aniline dyes.

The absurdity of the position of the Department of Agriculture in permitting the use of poisoned foods is seen in fixing the percentage of tin or copper salts, which is legal, and in not fixing the quantity of food which the individual may consume.

The inadequacy of the Federal Act is apparent when by the exercise of discretionary powers such traffic is possible.

Nobody will contend that sulphur dioxide is a safe ingredient of foods in daily use; yet the Government says you may take 155 milligrams with each kilogram of food; but is silent as to the quantity one may consume without suffering disastrous consequences.

The use of saccharin is probably the most vicious form of legalized adulteration, because unlike the other adulterants above named, it is substituted for one

of the chief constituents of food and possesses no nourishing or other useful property. It is employed solely to cheapen the product and deceive and starve the consumer.

This writer erroneously stated in a former issue of the bulletin of the Colorado State Board of Health that "artificial benzoic acid, one of the legalized adulterants of food is made almost exclusively from the urine of horses and other herbivorous animals, and always carries the aroma peculiar to its source." It should read "formerly so made, but now superseded by a benzoic acid obtained by the chlorination of toluene, which though not so pure chemically, as that obtained from urine, is preferred because furnished at about half the price."

All text books treating on this subject and published during the past thirty years give this information, except as to the reason for preference being given to the coal tar synthetic. If there be any person so unsophisticated as to imagine the manufacture of a few tons of benzoic acid from urine to be a chemical curiosity, let him go to the corner drug store and ask to be shown:

National Dispensatory, 1884, 3rd edition, page 35.

National Standard Dispensatory, 1905, 1st edition, page 33.

Remington's Pharmacy, 1887, 3rd edition, page 915.

Druggists' Circular, 1909, Feb. and March, pages 56, 127 and 138.

The value of benzoic acid as an antiseptic obtained convincive proof last June when the writer in conjunction with Dr. Sherman Williams, president of the State Board of Health, while visiting a pickle factory of this city, discovered several barrels of tomato pulp, which it was said had just been received from a cannery in northern Colorado. The heads of the barrels were swelled, the staves sprung, and the working pulp oozed through many forced crevices.

The pulp certainly looked like a total loss, but the addition of benzoate of soda, after boiling in copper kettles, made this decomposing pulp available for ketchup. It is possible that cresol, or some other well-known antiseptic would have been just as effective, but doubtful.

The most prolific source of adulteration in drugs is through the "relabeling" process in vogue in the U. S. custom houses.

When a drug arrives there, no matter how inferior or deteriorated in quality, it is examined by Government experts and its true character revealed. Whereupon it may be released to the consignee subject to a relabeling upon the cask, bale or other container, on which shall be declared the degree of adulteration.

If the contents of such bale or cask pass through a drug mill or are used in compounding or manufacturing, it is obvious what a farce this relabeling is.

In this way do we account for the poor quality of powdered drugs and spices on the market. Also for the resin of guaiac, which appears to be common rosin coated with powdered guaiac resin; a "tearless" benzoin mixed with barks, gravel and other extraneous matter and asafetida possessing none of the attributes of the true gum resin, except a slight peculiar odor.

A feature of the Colorado Food and Drug Law provides that the regulations adopted by the State Board of Health shall not conflict with nor be more stringent than those adopted by the U. S. Department of Agriculture; hence our anxiety and enforced interest in the Federal regulations.

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE SCOPE OF FOREIGN PHARMACOPŒIAS.

M. I. WILBERT.

In connection with the work of compiling the Digest of Comments on the Pharmacopœia of the United States (eighth decennial revision) and the National Formulary (third edition) now being carried on in the Hygienic Laboratory it has been found desirable to have for ready reference an index of the corresponding monographs in foreign pharmacopœias.

The index is arranged on cards or heavy paper slips, 12.5 by 20 cm. in size, and since its completion has been suggestive of a number of practical applications in connection with the study of articles official in the Pharmacopœia of the United States.

Not the least interesting of the several uses to which the index can be put is a comparative review of the scope of the U. S. P. with that of the pharmacopœias of other countries.

Thus it may interest you to learn that of the 957 titles included in the U. S. P. the equivalent of 356 are included in ten or more of the recently published foreign pharmacopœias, 144 of the articles being included in all of the fifteen pharmacopœias under review.

A total of 201 U. S. P. titles have no corresponding description in any one of the foreign pharmacopœias and an additional 94 of our official substances have been included in but one of the several books while the remaining 306 titles occur in from two to nine of the foreign pharmacopœias.

A further review of these titles suggests that fully 90 per cent of our widely used and medicinally valuable remedies are included in the 356 titles recognized by the majority of the foreign pharmacopœias while but a very few of the articles not described in some one other pharmacopœia would be seriously missed by American physicians if their official recognition were discontinued.

The appended tables present a review of the general scope of the recently published pharmacopœias and it is interesting to note that the number of articles not included in the U. S. P. is almost proportional to the total number of titles included in the foreign pharmacopœias rather than depending to any appreciable degree on the direct intercommunication existing between the two countries.

Thus the Servian Pharmacopœia with only 474 official articles contains but 144 that are not described in the U. S. P. and the Ph. Dan. VII with 489 official articles contains 160 that are not recognized in this country.

The new French Codex, on the other hand, with 1122 official articles contains 686 that are not included in the Pharmacopœia of the United States, and the new

German Pharmacopœia with approximately 700 titles (671) contains 269 for which no corresponding title is to be found in the U. S. P.

For some decades the German Pharmacopœia has held the rather unique distinction that it contained fewer articles not included in other pharmacopœias than any one other book of its kind. The Ph. Germ. IV contained but eleven titles that were not included in one or more foreign pharmacopœias and the Ph. Germ. V, despite the inclusion of a number of comparatively recent German chemicals, contains only sixteen titles not included in some one other pharmacopœia.

One of the more promising indications that pharmacy is destined to play an important part in the future development of the medical sciences is to be found in the general recognition that has been accorded to the provisions of the international treaty of 1906 regarding the strength of potent medicaments, based on the Brussels Conference of 1902.

The accompanying table (II) based on the comparative data that have appeared in the several volumes of Digest of Comments mentioned above, contains a graphic presentation of the approximate degree to which the several recently published pharmacopœias have complied with the provisions of the Brussels Protocol.

While the rating that has been given the several articles is necessarily an arbitrary one it nevertheless serves to indicate approximately the degree to which the several pharmacopœias have complied with the requirements of the Brussels Protocol, on a basis of 5 points for each title.

Taking the practical results of this, the first international treaty for the unification of medicaments, as a basis it would appear that even more can be accomplished in the very near future and that the frequently expressed hope that we may have international uniformity in Latin titles, methods of analysis, and strength of all potent medicaments may become a reality in the not far distant future.

In conclusion may I express the hope that American pharmacy will take an active part in the development of acceptable standards for widely used medicaments and that in future American pharmacists will lead rather than follow in any movement designed to advance the sciences relating to medicine as well as medicines.

TABLE I, SHOWING NUMBER OF TITLES INCLUDED IN THE SEVERAL NEWER NATIONAL PHARMACOPŒIAS.

	Published	Total No. of Titles	General Headings	Drugs	Chemicals	Preparations
Ph. Germ., V.....	1910	671	34	191	202	244
Ph. Russ., VI.....	1910	617	26	179	193	219
Ph. Hung., III.....	1909	534	17	152	171	194
Ph. Ital., III.....	1909	659	18	175	195	271
Ph. Fr., V.....	1908	1122	48	271	293	510
Ph. Svec., IX.....	1908	583	19	144	179	241
Ph. Serb., II.....	1908	474	18	141	141	174
Ph. Helv., IV.....	1907	853	29	244	227	353
Ph. Dan., VII.....	1907	489	22	142	144	181
Ph. Austr., VIII.....	1906	698	19	232	160	287
Ph. Belg., III.....	1906	722	25	185	173	329
Ph. Japon., III.....	1906	706	14	204	207	281
Ph. Ndl., IV.....	1905	673	17	200	182	274
Ph. Hisp., VII.....	1905	1073	0	269	260	544
U. S. P., VIII.....	1905	957	6	241	268	442

TABLE II, SHOWING THE APPROXIMATE DEGREE OF COMPLIANCE WITH
THE PROVISIONS OF THE BRUSSELS CONFERENCE AS EVIDENCED
IN THE PHARMACOPŒIAS PUBLISHED FROM 1905 TO
1910 INCLUSIVE.

INTERNATIONAL PROTOCOL TITLES	U. S. P. VIII, '05	Ph. Hisp. VII, '05	Ph. Ndl. IV, '05	Ph. Austr. VIII, '06	Ph. Belg. III, '06	Ph. Japon IV, '06	Ph. Helv. IV, '07	Ph. Dan. VII, '07	Ph. Fr. V, '08	Ph. Svec. IX, '08	Ph. Serb. II, '08	Ph. Ital. III, '09	Ph. Hung. III, '09	Ph. Russ. VI, '10	Ph. Germ. V, '10
Aconiti tuber	4	3	5	..	4	5	5	..	5	..	..	5	..	5	5
Tinctura Aconiti	3	5	5	..	5	4	5	..	5	..	..	5	..	5	4
Belladonnae folium	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Tinctura Belladonnae	3	5	5	5	5	..	5	..	5	..	5	5	5	5	..
Extractum Belladonnae	3	..	..	5	5	..	5	5	5	5	5	5	5	5	5
Colchici semen	5	5	5	5	5	5	5	5	5	5	5	5	5	..	5
Tinctura Colchici	3	5	5	5	5	5	5	5	5	5	5	5	5	..	5
Digitalis folium	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Tinctura Digitalis	3	5	5	5	5	5	5	5	5	5	5	5	2	5	5
Ipecacuanhae radix	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Tinctura Ipecacuanhae .....	..	5	5	5	5	5	5	..	5	5	5	5	5	..	5
Sirupus Ipecacuanhae	2	5	5	5	5	5	5	..	2	..	5	5	5	5	5
Hyoscyami folium	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Tinctura Hyoscyami	3	5	5	..	5	..	..	..	5	..	..	..	..	..	..
Extractum Hyoscyami	3	5	5	5	5	2	5	5	5	5	5	5	5	5	5
Nux vomica	4	5	5	5	5	4	5	5	4	5	5	5	5	5	5
Tinctura Nucis vomicae.....	3	5	5	5	5	5	5	4	4	5	5	5	5	5	5
Extractum Nucis vomicae.....	3	5	5	5	..	5	5	5	5	5	5	5	5	5	5
Pulvis Opii	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Extractum Opii	5	5	5	5	..	3	5	..	5	5	5	5	5	5	5
Tinctura Opii	3	5	5	5	4	4	5	5	4	4	5	5	5	4	4
Tinctura Opii crocata.....	..	5	5	5	4	..	5	5	..	5	5	..	5	5	5
Opii et Ipecacuanhae pulvis compositus.....	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Tinctura Opii benzoica.....	4	5	5	..	5	5	5	5	5	5	..	..	..	5	5
Tinctura Strophanthi	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Ergotum secale	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Extractum Ergoti	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Extractum fluidum Ergoti.....	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Acidum hydrocyanicum dilutum.....	5	5	5	..	5	..	..	..	5	..	..	5	..	..	..
Aqua Laurocerasi .....	..	5	4	5	5	3	5	..	5	..	..	..	..	..	..
Aqua Amygdalae amarae.....	2	..	..	..	2	5	..	5	..	5	5	5	5	5	5
Aqua phenolata .....	..	5	5	5	5	5	5	..	5	5	5	5	5	..	5
Sodii arsenas	4	5	5	..	5	..	5	..	5	..	..	3	..	..	..
Kalii arsenicosi liquor.....	5	5	5	5	5	5	5	5	5	5	..	5	5	5	5
Sirupus ferri iodati.....	5	5	5	5	5	5	5	5	2	5	5	5	5	5	5
Tinctura Cantharidis	3	4	5	5	5	5	4	..	5	5	5	5	5	5	5
Tinctura Iodi	3	..	5	5	5	3	5	5	..	5	5	5	5	5	4
Tinctura Lobeliae	3	5	5	..	5	5	5	5	..	5	5	3	..	5	5
Cocainum hydrochloricum	5	5	5	5	5	5	5	5	..	5	5	5	5	5	5
Unguentum Hydrargyri	3	5	5	5	5	3	5	5	3	5	5	5	5	5	5
Vinum antimoniale	5	5	5	5	5	5	5	..	5	..	5	5	5	5	5

A FEW SUGGESTIONS FOR THE NINTH DECENNIAL REVISION OF
THE UNITED STATES PHARMACOPOEIA.

L. HENRY BERNEGAU AND GEORGE E. EWE.

While we have no doubt but that many of the difficulties met by us in following official instructions for the testing of U. S. P. products have already been or will be corrected by the Committee of Revision, we have summarized a number of them, on which we have not hitherto seen comments, and beg to offer them, together with certain suggestions, in the following paper.

Aqua Ammoniac, Assay of.—The official method of weighing and titrating is inconvenient and subjects the sample to possible loss by volatilization. An improvement consists in placing a measured volume of standard acid solution in a glass stoppered weighing bottle, weighing, quickly introducing a sample of the ammonia to be assayed, stoppering tightly, and weighing again. A very little practice enables one always to use a proper excess of acid.

In the assay of *volatile acids*, the same principle may be employed, weighing the sample in a weighing bottle containing an excess of standard alkali solution.

Acidum Lacticum, Assay of.—The present U. S. P. method is unreliable and gives too low results. Murray's or the German Pharmacopoeia method should be adopted. If adopted, the standard should be raised to not less than 85 per cent.

Aqua Hydrogenii Dioxidii, Determination of Acetanilide in.—The following method gives nearly accurate results: Shake out about 200 Cc. H_2O_2 with 4 portions of chloroform, 25 Cc. each. Evaporate the chloroform on steam bath, dry residue at a temperature not higher than 60°C . and weigh as acetanilide.

A standard solution of acetanilide in H_2O_2 gave 100% of the acetanilide by this method.

The recovered acetanilide is white in new lots of H_2O_2 and slightly brownish in very old lots. However, in the latter case the melting point is only one or two degrees below the standard of pure acetanilide (113°C ., U. S. P.).

The chloroform also extracts acetanilide decomposition products having an odor like nitrobenzol; but as these are volatilized on drying the recovered acetanilide, they do not affect the result.

Arseni Trioxidum, Assay of.—The following method has proved more convenient to us: Dissolve the weighed sample in a little KOH Test Solution (Heat may be applied). Make acid with HCl, make again alkaline with NaHCO_3 and add 1 or 2 Gm. more of NaHCO_3 . Dissolve and titrate back with $\text{N}/10$ Iodine.

In the U. S. P. method it is very difficult to dissolve 0.1 Gm. As_2O_3 in 20 Cc. of water and 1 Gm. NaHCO_3 with a gentle heat and there is also the possibility of forming normal sodium carbonate which would use up some iodine.

Cocainae Hydrochloridum, Identification of.—A *strong* solution of cocaine hydrochloride in diluted HCl is necessary in applying the potassium chromate test. The U. S. P. directs "a HCl solution of the salt." In *too* dilute solutions no reaction takes place.

Copaiba.—This product rarely answers the requirement for solubility in petroleum benzin. As a rule considerable insoluble matter is left, even with samples the purity of which is unquestionable. In testing for Gurjun balsam,

Turner's nitrite test should be adopted, as has been done by the new edition of the German Pharmacopoeia.

Creosotum.—A better phraseology for the test for "difference from and limit of Phenols" would be, "if 1 volume of creosote be mixed with 1 volume of 95% glycerin, a clear mixture will result, from which a creosotic layer, equal to or greater in volume than the creosote employed, will separate on the addition of water to the extent of one-fourth the volume of the creosote—glycerin mixture."

In the test for solubilities the sentence, "Soluble in all proportions in acetic acid" should read, "Soluble in all proportions in *glacial* acetic acid."

Definitions Wanted:

What is meant by "*colorless*"? A definition is needed. What depth of liquid is required? What width of tube should be employed? It would be advisable to use in all cases Nessler's tubes or jars. A liquid may be colorless on looking through the tube transversely, but may show an appreciable coloration on looking through the liquid vertically from top to bottom of the tube.

What is meant by "*parts*"? A statement should be included to make clear that "parts" as used in stating solubilities means "parts by weight." No other interpretation is at all likely in the case of solids, but, after noting the solubility of chloroform in water, which is given in "volumes," a wrong interpretation of "parts" as applied for example to cresol, creosote, and bromine, might result.

What is meant by "*unweighable residue*"? This statement should be defined. In the German Pharmacopoeia it is defined as "less than 1 mgm." For example: A sample of yellow oxide of mercury gave 0.0002 Gm. residue in test for "absence of many foreign salts." Is this considered to be unweighable?

The same sample gave 0.0008 Gm. residue in "limit of foreign metals." A second sample gave 0.0011 and 0.0004 Gm. respectively. A third sample gave 0.0018 and .0004 Gm. respectively. A fourth sample gave 0.0004 and 0.0006 Gm. respectively.

Speaking of yellow oxide of mercury, we found it unfair to this product to run the U. S. P. tests for "absence of foreign salts" and "limit of foreign metals" without running a blank test at the same time, as in many cases the blank gives as high as 0.0005 Gm. residue.

Fluidextractum Frangulae, Preparation of.—The U. S. P. process seems to give a product which contains only about 70% of the emodin found by the assay of the drug.

A sample of the bark, which assayed 1.141% emodin gave a U. S. P. fluid-extract assaying only 0.778% emodin, or 68.2% of the emodin found in the drug.

Fluidextractum Sennae, Preparation of.—As in the case of fluidextract of frangula, the U. S. P. process seems to give a product containing only about 70% of the emodin contained in the drug.

A sample of senna leaves, which assayed 0.667% emodin, when made into a fluidextract by U. S. P. directions gave a fluidextract assaying only 0.479% emodin or only 71.9% of the emodin shown to be contained in the drug.

Glandulae Thyroideae Siccæ.—In the test for "inorganic iodine," the phrase "A cold extract of desiccated thyroid glands" should read "A cold *water* extract of desiccated thyroid glands."

Liquor Formaldehydi, Assay of.—In assaying, the flask should be shaken occa-

sionally during the thirty minutes standing, or until gas bubbles are no longer formed on shaking. The reaction proceeds slowly at times and thirty minutes *without* shaking is insufficient. The reaction is only complete when gas bubbles are no longer liberated on shaking.

Mel, Test for Cane Sugar in.—It is to be presumed that the U. S. P. test for "absence of cane sugar" is intended to provide a means of testing for non-reducing sugar. As such, the test is unreliable. A rather complicated but reliable substitute is the method of reduction of an alkaline copper (Fehling's) solution before and after inversion treatment with dilute acid, the difference in the amounts of cuprous oxide found being calculated as sucrose.

As an illustration: A sample "B" gave a dark zone at the end of one-half hour and a sample made up in our laboratory from the fresh combs also gave a dark zone, but not as dark as the "B" sample.

"B" sample assayed 72.90% reducing sugar.

Laboratory sample assayed 65.80% reducing sugar.

"B" sample assayed 1.25% non-reducing sugar.

Laboratory sample assayed 9.72% non-reducing sugar.

While the U. S. P. test would indicate that the "B" sample contained more non-reducing sugar than the sample made from fresh combs in the laboratory, the cupric-reducing power proved this to be not the case. A "limit" of sucrose is needed.

Melting Point of Waxes, etc., Determination of.—We have found the following to be a good method: A piece of thin glass tubing about three-eighths inch in diameter and about three inches long is heated in the Bunsen flame about one inch from one end until the walls fall in and form a constriction with a capillary opening. To use this device, the smaller end is pressed into the wax up to the constriction. The device is then bound to a thermometer and both are suspended in a beaker of water so that the constriction is about one inch below the surface. Heat is applied with constant stirring of the water. When near the melting point, the temperature is raised at the rate of one degree in two minutes. When a drop of the melted wax passes up through the constriction or capillary opening, the melting point is indicated. The melting point is very easily observed as it is quite sharp. This method is much better than the "drop of mercury" method, which we formerly used, the trouble being that with this method the melting point is not sharp, as it sometimes requires two or three minutes for the drop of mercury to fall through the melted wax.

Melting point methods for such substances as petrolatum, lanum, etc., should be described and adopted.

Myrrha.—The sentence, "It does not swell or dissolve in water," should read, "It does not swell or *completely* dissolve in water," in view of the fact that myrrh contains considerable water soluble gum.

Oleum Eucalypti. Assay for Cineol.—We have found the following procedure very satisfactory: Introduce into a beaker a solution prepared by dissolving 10 Cc. of the oil in 50 Cc. purified petroleum benzin; immerse the beaker in a freezing mixture and add phosphoric acid U. S. P. (85%), drop by drop, with constant stirring until 12/15 Cc. have been added and the magma of cineol phosphate formed is bulky, granular, and pinkish in color; then stir occasionally for

one-half hour. Transfer the magma quickly and completely to a force-filter, wash it several times with cold purified petroleum benzin and then press it between two porous plates until a dry, white powder (cineol phosphate) is obtained. Finish like U. S. P.

The indefinite quantity of phosphoric acid in the U. S. P. method is apt to produce trouble for the novice, as an insufficient quantity will result in an incomplete separation of the cineol and an excessive amount will result in a sticky magma which is difficult to handle and dry and almost impossible to wash properly. The stated amount of phosphoric acid—namely 12/15 Cc.—has proved satisfactory in our work, with oils ranging from 50-80% cineol, while 20 Cc. has produced the sticky magma mentioned above.

Olcum Olivae, Elaidin Test for.—None of the samples tested during the last few years responded properly to the elaidin test, and rarely gave a "whitish granular mass" in the freezing test. It is suggested that a thorough investigation of these tests be made.

Olcum Terebinthinac, Test for Hydrocarbons in.—The U. S. P. test for "absence of petroleum benzin, kerosene or similar hydrocarbons" should have a time limit upon it as the "clear layer" is small or large in proportion to the time the mixture is allowed to stand. "After the dark mass has settled" is very indefinite; in fact, there is usually no "dark mass."

Illustrations: (1) 0.35 Cc. clear layer after one-half hour; 0.35 Cc. after 45 minutes and 0.45 Cc. after 15 hours. (2) 0.35 Cc. clear layer after one-half hour and 0.6 Cc. after 15 hours. (3) 0.4 Cc. clear layer after one-half hour and 0.7 Cc. after 15 hours.

Later experiments show that vigorous shaking of the sulphuric acid-turpentine mixture in the burette after cooling leaves smaller and in some cases practically no clear layers, even after 24 hours standing. Is such shaking allowable?

Resina Podophylli.—We have found that the alcohol soluble matter is always low and the water soluble matter always high. Some examples:

Alcohol soluble: 92.2, 98.0, 95.6, 93.6, 92.8, 92.2, 93.9, 92.2;

Water soluble: 35.5, 35.9, 45.1, 42.0, 41.1, 42.0, 39.3, 26.1.

U. S. P. standard is "not less than 99% soluble in alcohol and not more than 25% soluble in water." Are not these requirements too rigid?

Saccharum Lactis, Test for Cane Sugar in.—The U. S. P. test for "absence of cane sugar" is unreliable. The Leffmann-Oliver Sesame Oil test is an excellent substitute. Samples leaving 0.152 and 0.142 Gm. (instead of not more than 0.03 Gm.) in the U. S. P. test were proved free from cane sugar by means of this test.

The Leffmann-Oliver Sesame Oil test for cane sugar is made as follows: Dissolve 0.1 Gm. of the sample in 4 Cc. concentrated hydrochloric acid and add 4 Cc. of sesame oil. Shake vigorously for one-half minute and allow to stand.

Approximate estimation:

Cane sugar 1% gives faint pink color in 12 minutes.

Cane sugar 3% gives faint pink color in 5 minutes.

Cane sugar 5% gives faint pink color in 4 minutes.

Cane sugar 10% gives faint pink color in 2 minutes.

Cane sugar 100% gives faint pink color immediately.

Milk sugar 100% gives faint pink color in 15 minutes.

The reagent must be made up freshly for each test.

Sapo Mollis, Test for "limit of free alkali" in.—A suggested improvement is as follows: Dissolve the soap in absolute alcohol with the aid of heat, filter, and reserve the filter and contents for the determination of potassium carbonate. Titrate the filtrate with N/10 oxalic acid using phenolphthalein as indicator, and calculate the alkalinity as potassium hydroxide (KOH).

Then place the filter and contents in a flask, add a little water, shake to dissolve the potassium carbonate, if any, and titrate with N/10 sulphuric acid, using methyl-orange as indicator. Calculate as K_2CO_3 . Limits should be specified. We have seen many soaps which did not give an alkaline reaction with phenolphthalein, but did so with litmus.

In conclusion, we beg to state that if methods for the determination of alcohol in galenicals are to be adopted, we would be glad to submit a description of the methods used by us and the modifications which we have found necessary in applying them to different preparations.

ANALYTICAL LABORATORY OF THE H. K. MULFORD COMPANY.

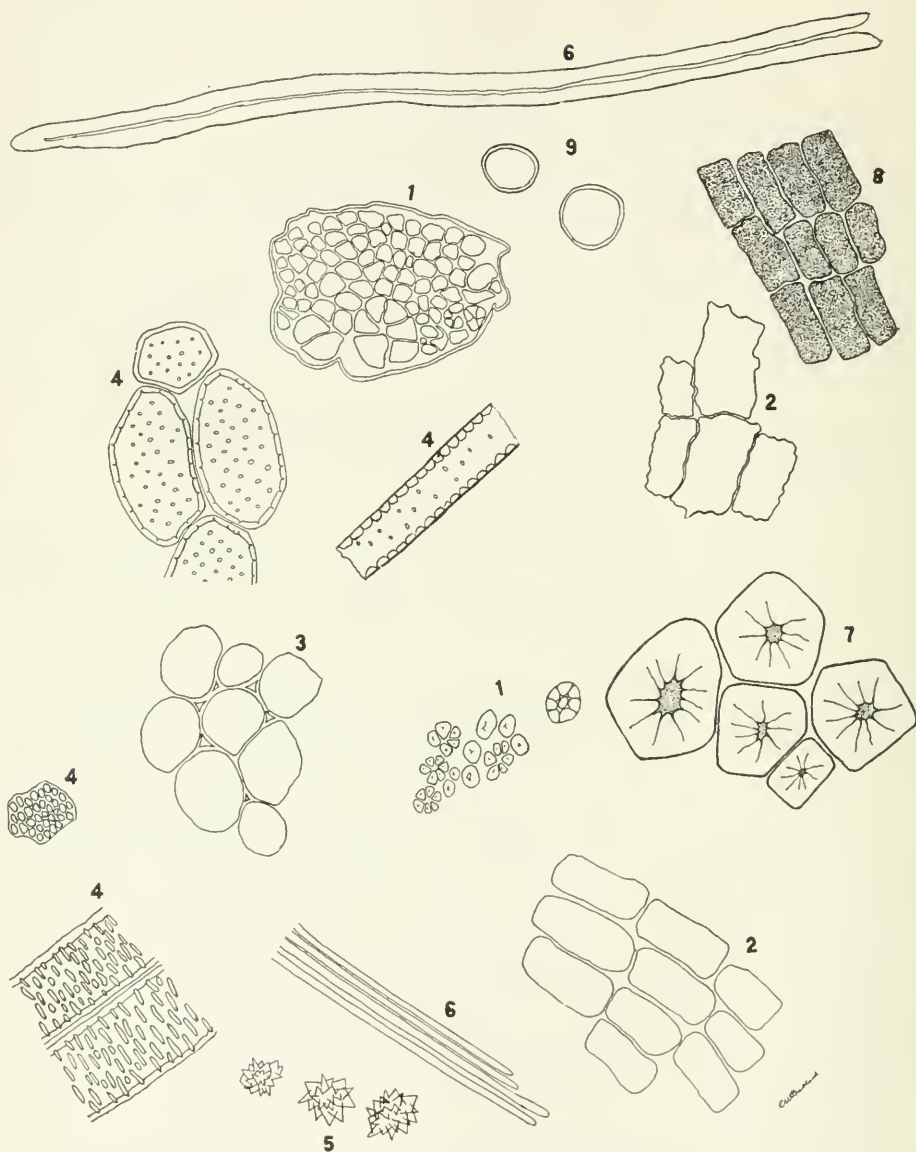
August 8, 1911.

NOTE ON TRUE SCAMMONY AND MEXICAN SCAMMONY ROOT.

CHARLES W. BALLARD.

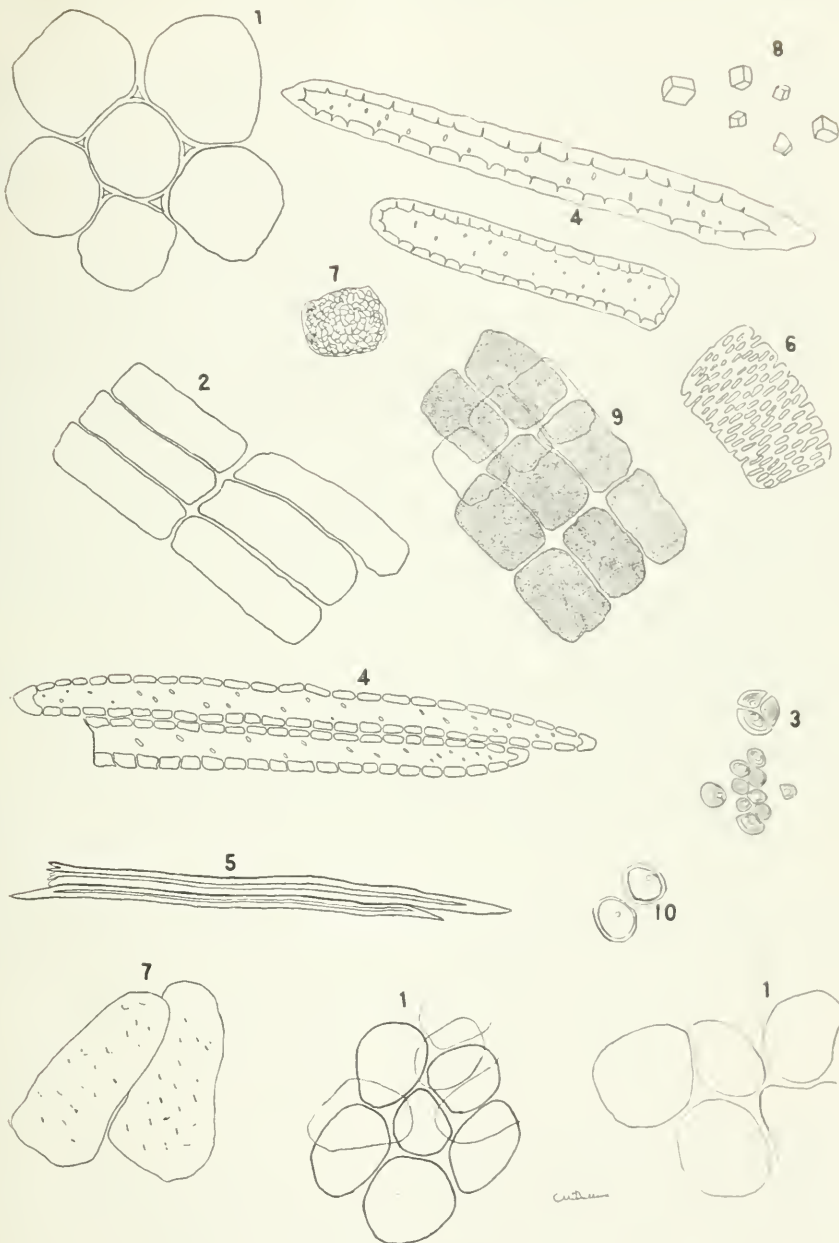
For the past year or two the root of *Ipomoeia Orizabensis* has been imported in large quantities under the name of Mexican Scammony root. The reason for this lies in the fact that the genuine scammony root is becoming scarcer and therefore higher in price than heretofore. Whether this root of *Ipomoeia Orizabensis* is identical with the genuine scammony in therapeutic effects and yields a resin having similar properties is a subject for pharmacologists to determine. There can be little doubt, however, that pending such determination it is hardly an ethical proceeding to market the Mexican scammony as the genuine article. It may be as good therapeutically but it sets a bad precedent and there is always the tendency to apply the same rule in the case of inferior substitutes. This results in the physician condemning the drug as unreliable or uncertain in action and such drugs ultimately drop into disuse not through any fault of their own but as the result of wide latitude in the use of other species supposedly as active as the official.

The subject of scammony is scarcely treated in text-books dealing with the subjects of powdered drugs and the Mexican variety is not even mentioned in most. This is not surprising because most of these volumes deal with the more common drugs and one can refer to any of them and find good descriptions of these. But when one tries to obtain references on drugs not in everyday use, he finds that they are lightly passed over in most cases and in many more are not mentioned. There seems to be great need of an abstract or index dealing with subjects of pharmacognosy, as at present one may spend days in search of light upon a certain subject and it is often more expeditious to work the problem out rather than search for material.



MEXICAN SCAMMONY.

- | | |
|--|----------------------|
| 1. Parenchyma containing single and com- | 5. Rosette crystals. |
| pound starch grains. | 6. Fibers. |
| 1'. Separate starch grains. | 7. Stone cells. |
| 2. Longitudinal parenchyma. | 8. Epidermal tissue. |
| 3. Transverse parenchyma. | 9. Oil globules. |
| 4. Ducts and tracheids. | |



TRUE SCAMMONY.

- | | |
|-----------------------------|----------------------|
| 1. Transverse parenchyma. | 6. Section of duct. |
| 2. Longitudinal parenchyma. | 7. Resin masses. |
| 3. Starch grains. | 8. Cubical crystals. |
| 4. Tracheids. | 9. Epidermal tissue. |
| 5. Fibers. | 10. Oil globules. |

Even in microscopic appearance there is considerable difference in the two roots, the Mexican being much darker and larger, usually transversely sliced to facilitate drying. The Mexican is also deeply ridged and furrowed externally. Upon breaking genuine scammony root we obtain a peculiar cheese-like odor which is entirely wanting in the Mexican, the latter having an odor somewhat resembling licorice root. Examining the broken or cut ends, a further difference is seen; the Mexican having well defined concentric rings of wood, the genuine has bundles isolated from one another. Then there is the difference in color; Mexican being dark dull brown, while the genuine is of a grayish white.

MICROSCOPIC APPEARANCE OF POWDERED MEXICAN SCAMMONY.

One of the most noticeable features of the powdered Mexican scammony root is the presence of a rather large number of rosette crystals. The fibers are long with comparatively thin walls. Few stone cells may be found, these being large and thick walled, with small cavity, having lines radiating from it. The starch which is plentiful has a cleft or dot hilum and in many cases the grains appear to be compound consisting of five or six granules. The parenchyma is of well defined cells usually filled with starch. Upon examination of several specimens of Mexican scammony root the oil globules were found to be fewer than in the genuine. The epidermal tissue presents nothing very noteworthy. The ducts and tracheids are all of the pitted or reticulate variety. Just beneath the epidermis there sometimes occurs a parenchyma with wavy walled cells.

MICROSCOPIC APPEARANCE OF POWDERED GENUINE SCAMMONY.

The genuine scammony root in powder may at once be distinguished from the Mexican variety by the presence of cubical crystals in fairly large numbers. The parenchyma is of the loose type having very few cells filled with starch. The starch is much less in amount than in the Mexican and smaller. The grains are single and compound, the latter consisting of two to four granules. A large number of thick walled tracheids are found, separate or in conjunction with fibers smaller and thinner walled than in Mexican. Oil and resin masses are present in large number. The ducts are not as numerous as in the Mexican variety but are of the same types. The epidermal tissue as might be expected is much lighter in color than in Mexican and the cells are smaller and more regular in shape. The resin masses and oil globules are yellowish in color.

ACTION OF REAGENTS ON THE TWO RESINS.

Upon trituration of the resins with water a milky fluid is obtained. The product appears to be identical in physical properties. There may be minor differences in composition as the following tests show.

Addition of potassium dichromate solution to the emulsion of the true resin gives an orange reaction. With the Mexican resin the same reaction is obtained at first, but the mixture rapidly darkens into a brown shade.

Upon addition of ammonia water the Mexican resin slowly precipitates; the genuine gives a yellow mixture.

Upon addition of ferric chloride solution followed by Lugol's solution a chocolate brown is obtained in the case of Mexican resin, and a black in the genuine resin.

THE PHARMACOPŒIAL STANDARD FOR DESICCATED THYROID GLANDS.

REID HUNT AND ATHERTON SEIDELL.

[Division of Pharmacology, Hygienic Laboratory, U. S. P. H. and M. H. Service, Washington, D. C.]

During the past few years a great many experiments have been made in this laboratory upon the relation between the physiological activity of thyroid and its iodine content. These experiments and practically all that have been described in the literature demonstrate this parallelism; it may therefore be concluded that at present the most satisfactory way to standardize thyroid is by means of the determination of the originally combined iodine which it contains. From the standpoint of the Pharmacopœia the question resolves itself simply into the selection of the most satisfactory method for the iodine estimation and the adoption of the most reasonable percentage content of iodine as the standard.

Of the methods which may be used for the determination of the iodine there are only two which need to be considered, viz., the older Baumann method which consists of fusion with caustic alkali, liberating the iodine by suitable means from the aqueous solution of the fused residue, extracting it with an immiscible solvent, and estimating its quantity colorimetrically, and the recently proposed Hunter method, which differs from the above in substituting alkali carbonates for the fusion, conversion of the iodine to the iodic state, and estimating its amount by a volumetric procedure. Of these two methods the latter has been found by us to possess advantages both in reliability of the results, and convenience of execution. Furthermore, from the point of view of the Pharmacopœia it possesses the advantage over the Baumann method that no analytical procedures, volumetric solutions, or reagents, new to the present edition of the Pharmacopœia, are required.

In his original paper* Dr. Hunter gives very clear and explicit descriptions of all the details of the process, and there is consequently little opportunity for uncertainty in regard to any part of the method. It is the rule, however, in pharmacopœial descriptions of analytical processes, that only the essential features be included, consequently it appears desirable that a concise description of the Hunter method, in what may be called pharmacopœial language, be given. Such an outline would be as follows:

Determination of Iodine (Hunter Method). One gram of desiccated thyroid gland is mixed in a nickel crucible of about 125 Cc. capacity, with 15 grams of a mixture composed of 138 parts by weight of anhydrous K_2CO_3 , 106 parts anhydrous Na_2CO_3 and 75 parts KNO_3 , and an additional 5 grams of this fusion mixture spread evenly over the surface. The crucible is then heated over a free Bunsen flame until no further carbonization is observed, it is cooled and the friable residue dissolved in about 150 Cc. of distilled H_2O . To this solution contained in an Erlenmeyer flask of about 500 Cc. capacity, is added approximately 50 Cc., or its equivalent, of fresh liquor sodæ chlorinatae U. S. P. (containing 2.4 wt. per cent Cl). The mixture is then treated with enough phosphoric acid (1 volume of the 85 per cent syrup and 1 volume of H_2O), to produce a marked yellow tint

* Hunter: Jour. Biol. Chem., 2, 321-349, 1910.

of free chlorine, and an additional 10 Cc. of the phosphoric acid is then added and the contents of the flask boiled for about one-half hour or until the volume has been reduced to about 150 Cc. The liquid is cooled, 10 Cc. of 1 per cent aqueous KI solution is added and the liberated iodine titrated with N/200 sodium thiosulphate, adding starch paste as the indicator just before the end of the reaction.

The N/200 thiosulphate may be made by diluting 25 Cc. of exactly N/10 thiosulphate to 500 Cc., it changes strength rapidly and should be prepared fresh at each time determinations are made. One Cc. of N/200 thiosulphate corresponds to 0.0001058 Gm. iodine derived from the sample of thyroid used.

This method has been tested in this laboratory in comparison with the Baumann method, upon quite a large number of samples of commercial desiccated thyroid glands. The agreements in duplicate determination by the Hunter method were found to be considerably more uniform than those by the Baumann method, and the results in practically every case were from 10 to 15 per cent higher. Since there is a reasonable source of loss at one step of the Baumann method, viz., the acidification of the aqueous solution of the fusion residue, and this particular cause of loss has been obviated by Hunter in his method, there can be little doubt that the higher results are the nearer correct.

Of the commercial samples which we have so far examined, some were purchased on the market during 1907, and the others recently received direct from two American firms which prepare thyroid glands for medicinal use. For these latter we herewith acknowledge our indebtedness to Armour & Co., and Parke, Davis & Co. The samples received direct are portions of the several lots prepared at the particular dates shown in the table.

PERCENTAGE OF IODINE IN COMMERCIAL DESICCATED THYROID U. S. P.
AS DETERMINED BY THE HUNTER METHOD.

Lab. No.	Source	Per ct. I.	Lab. No.	Source	Per ct. I.
99.....	P. D. & Co. (1907)	0.185	104.....	Armour & Co. (1907)	0.138
99 (a).....	"	0.185	107.....	"	0.145
100.....	"	0.188	108.....	"	0.138
101.....	"	0.153	109.....	"	0.141
102.....	"	0.162	109 (a).....	"	0.142
103.....	"	0.219	119.....	"	0.135
105.....	"	0.138	120.....	"	0.129
106.....	"	0.218	121.....	"	0.140
106 (b).....	"	0.212	Average, 0.138.		
116.....	"	0.118	345.....	" Dec. 16, '09	0.279
117.....	"	0.117	346.....	" Jan. 23, '10	0.095
118.....	"	0.158	347.....	" Feb. 15, '10	0.212
Average, 0.171.			348.....	" April, '10	0.162
358.....	" (1911)	0.206	349.....	" May, '10	0.146
359.....	"	0.206	350.....	" June, '10	0.271
360.....	"	0.154	351.....	" July, '10	0.202
361.....	"	0.214	352.....	" Aug., '10	0.231
Average, 0.195.			353.....	" Sept., '10	0.215
			354.....	" Oct., '10	0.144
			355.....	" Nov., '10	0.252
			356.....	" Jan. 16, '11	0.219
			Average, 0.202.		
			357	Thyroid Protein (Armour)	0.607

From the above results it is found that the average of the twelve P. D. & Co. samples received in 1907 is 0.171 per cent I., while that for the Armour samples is 0.138 per cent. On the other hand the average per cents for the recent samples are respectively 0.195 and 0.202, thus showing that in both cases products with higher iodine contents are being prepared. On the whole these results show a very commendable degree of regularity in the percentage of iodine in thyroid at present on the market. With very few exceptions none of these samples might be expected to produce a noticeable variation in physiological effect. There can be no doubt, however, that the interests of both the producer and consumer would be safeguarded by the establishment of a reasonable pharmacopoeial standard of iodine content. Judging from the results upon the samples supplied by the manufacturers themselves, such a limit could be fixed at approximately 0.2 per cent I without causing an undue hardship. This per cent has already been adopted by an English firm. Of course sufficient latitude, of say 0.03 per cent above or below this figure, should be permitted, thus making the extreme limits 0.17 to 0.23 per cent iodine.

The remaining pharmacopoeial description which is necessary is that limiting the source of the raw material to certain animals and prescribing a reasonable limit of moisture and ash, which from our experiments might be placed at not exceeding 6 per cent for the former and 5 per cent for the latter, and finally the prohibition of all iodine in inorganic or any other form of combination than that peculiar to the thyroid.

In regard to the ash content it should be mentioned that in general those samples with the higher percentage of iodine contain the lower percentage of ash, and vice versa. Thus for instance, of 12 samples containing more than 0.2 per cent iodine the variation in the ash content was from only 3 to 4 per cent, while 6 samples containing approximately 0.15 per cent iodine contained more than 4 per cent ash, and one sample with only 0.095 per cent iodine contained more than 5 per cent of ash.

It has recently been suggested by certain investigators that the iodine of thyroid may not all be present in an equally physiologically active form, and consequently that it was possible by certain manipulative processes to remove the less active forms and retain the more active portion in a product which is therefore supposed to contain iodine in a super active condition as compared with that of the untreated material. A number of experiments which we have recently made with one of these products, designated as thyroid proteid, have failed to confirm this hypothesis. These recent experiments indicate even more conclusively than our previous work, the constant behavior of the thyroid-iodine substance and the close relation between the iodine content and the physiological activity of both the desiccated thyroids and the new thyroid proteid.

ASSAY OF FLUIDEXTRACT OF SANGUINARIA.

(Blome's Modification of Schlotterbeck's Method.)

H. B. MEADE.

The following is Blome's modification of Schlotterbeck's method for the assay of sanguinaria, adapted to the fluidextract:

Fluidextract	5 Ccs.
Ether	q. s.
Chloroform	q. s.
Alcohol 95%	q. s.
Ammonia Water	4 Ccs.
Water	q. s.
Sulphuric Acid N/10.....	10 Ccs.
Potassium Hydrate N/50.....	q. s.
Phenolphthalein	q. s.

Shake 5 Ccs. of the fluidextract well for one minute with 10 Ccs. of water, 4 Ccs. ammonia water, and 20 Ccs. ether. Let separate completely and draw off ether. Shake out aqueous solution with 15 Ccs. of ether. After drawing off the ether, add 5-10 Ccs. of 95% alcohol, as a black finely divided deposit occurs at this point (if not after the first shake out), which apparently retains some alkaloid. The sediment is probably extractive, precipitated by the extraction of the alcohol with the ether. Shake with successive portions of 10 Ccs. of ether until a small amount of ether (after evaporation, and treatment with dilute HC) gives no precipitate with Mayer's reagent, four treatments usually being sufficient.

Evaporate the ether, dissolve the residue in a few (preferably two or less) Ccs. of chloroform, add 5 Ccs. (measured) of N/10 H_2SO_4 and 10 Ccs. of water. Evaporate the chloroform, stir well, and when cool, filter solution through paper into a 100 Cc. volumetric flask, or graduate. Repeat the extraction of the alkaloid in the same manner from the gummy residue, using decreasing amounts of 3 and 2 Ccs. of N/10 H_2SO_4 . Rinse the beaker, and wash filter with water.

Precipitate alkaloid with excess of Mayer's reagent, shake well, make up to 100 Ccs. with water and mix thoroughly.

Filter through dry paper, collect 50 Ccs., decolorize with sodium thiosulphate if necessary, and titrate the excess of acid with N/50 KOH, using phenolphthalein as indicator.

Multiply the number of Ccs. of acid required by 50 Ccs. of the clear filtrate by .035 and the result by 40 to obtain grams of alkaloid per 100 Ccs. of fluidextract.

NOTE—In shaking out with ether the author prefers to pour the ether out of the top of the separator, after drawing off as much as possible of the aqueous portion. The results as obtained—good, bad and indifferent—are all given. They show besides the value of the method, the deterioration of the fluidextract. It was found preferable to work on 5 Cc. rather than 10 Cc. portions.

The results obtained April 10, 1911, were by a junior pharmacy student, who

had no experience in drug assaying and simply followed directions, which speaks well for the method.

Date of Assay	Amount Worked On	Gms. Alkaloid per 100 Ccs.	Remarks
February 21, 1911.....	10 Ccs.	2.58 2.52	
March 29, 1911	5 Ccs.	3.23 3.17	Work interrupted. Probably absorbed ammonia upon standing for some time.
April 10, 1911	5 Ccs.	2.77 2.69	L. P. Griesmer assayed.
May 25, 1911	5 Ccs.	2.60 2.02	Deposit in bottle. Inexplicably bad.
May 31, 1911	5 Ccs.	2.41 2.35	
June 1, 1911	10 Ccs.	2.23 2.31	

Laboratory of Prof. Charles H. LaWall.

THE QUALITY OF SERVICE.

"No druggist can make headway selling disinfectants if the odor of his soda fountain is like that of a fish market on Sunday. No druggist can pose as an authority on razors, shaving soap or bay rum who has three days' scraggly growth of whiskers on his chin. Toilet preparations will not be bought from a man in a dirty collar and soiled hands. To sell an article a man must seem to be an authority on it, and to be an authority he must show some evidence of having used the article he is selling.

"All these things are simply branches of that one item of *service*. I would rather have a clean, polite clerk who couldn't tell moth balls from menthol after he smelled them, than a dirty, grouchy graduate from the best pharmaceutical college in Christendom! You can teach a man pharmacy, but you can no more teach politeness and cleanliness to a man than you can teach a razor-back hog to be a Berkshire! It's got to be born in the man and the hog! Pick your clerks with this in mind, and then every morning when you open your pill parlor ask yourself the question, 'What can I do today to better the *service* of this store?' and then keep right on repeating it after each customer, like a schoolboy adding the word 'Excelsior' after each verse of Longfellow's poem by that name. Make this the chorus of your song, make it the aim of your life, and you will as surely succeed in business as the sun shines.

"Ready-made success can be handed to no man! He's got to make it for himself, and the one item of *service* will go further toward it than any other. To win without it is about as easy as it is for a canary bird to teach a rattlesnake to turn handspings!"—*Roe Fulkerson in So. Pharm. Journal.*

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

CONSERVING THE WASTE FROM THE EDUCATIONAL MILL.

J. W. STURMER, LAFAYETTE, IND.

For years the annual crop of graduates in pharmacy has been far short of the demand. Unfortunately owing to certain economic conditions (which we cannot alter) we need not at present expect an increase in pharmacy matriculants at all commensurate with the increase in the demand for graduates. In the language of the manufacturer, our supply of crude material is falling short. A shortage of crude material arouses interest in waste conservation.

The crude material which goes into the educational mill is the most precious of all crude material. No waste deserves greater attention and study than does this waste of human grist. How much of it is needless waste?—how much of it reclaimable?—how can we reclaim it? These questions set forth problems which are not new in pedagogic circles. But owing to the peculiar conditions now obtaining in pharmacy it is hoped that pharmacists generally may become interested in these problems as far as they pertain to pharmaceutical education; for it is the pharmacist in business—the preceptor of prospective students—whose aid the pharmaceutical educator would solicit in the work of reducing the percentage of failures in schools of pharmacy.

A college course operates inevitably as a sifter. There is bound to be shrinkage in the classes during the college year. Nearly five per cent may be expected to leave school because of sickness or physical disability. Another five per cent probably find that they have been too optimistic in their expectations of earnings at college, and must needs leave because of the unsatisfactory condition of their exchequer. Some fail because of inadequate preparation. Others because they lack inherent mental ability—nature having intended that they become “hewers of wood and drawers of water.” These latter are of course irreclaimable; to coach them through to graduation would simply “clutter up” the waste baskets of the state boards of pharmacy; or what would be worse, the profession, with incompetents. Fortunately, the inherently unable seldom exceed *five per cent* of the class enrollment. (This is the writer’s estimate based on a careful analysis of his own classes during the last six years, and no doubt is indicative—approximately at least—of the character of pharmacy students the country over.) Now let us see: If we estimate the losses due to sickness and to lack of funds, (medical, hygienic, or financial problems) at about 10 per cent in all, we have, on

adding the mentally incapacitated, i. e., five per cent, a total of 15 per cent, which furnish no pedagogic problems, and need not further concern us in this discussion.

But the average shrinkage in classes in schools of pharmacy the country over is about 35 to 40 per cent and, taking into account the length of course, exceeds the shrinkage in the classes of most other vocational schools. So we have approximately 20 per cent or more of the class enrollment dropping out before graduation for reasons deserving our closest scrutiny. Now there are many reasons why capable students may fail. Some of these reasons are of interest to no one except to the professional teacher, and hence will be omitted from this paper, which is addressed primarily to the retail pharmacists. Suffice it to say that educational institutions are carefully studying the problems involved in saving students from failure, and are making headway in the right direction—are getting results. But of the various reasons why capable students fail there are two which should interest not only teachers, but also preceptors or friends of prospective students. To set forth these two reasons to which may be attributed a very large percentage of failures is the special object of this paper.

In the first place, the writer would call attention to the great difficulty some new students experience in adjusting themselves to the conditions which obtain in the university and in the vocational school; conditions which differ radically from those to which the high school student is accustomed. In the high school he is assumed to be a rather irresponsible boy. His study hours and his recreation hours are mapped out for him as definitely as is his class schedule. And there is some one—parent or instructor—to see to it that each task is begun at the proper time, and is duly finished. At the university or vocational school there are, to be sure, a schedule of class work, and lessons definitely assigned. But each student is his own taskmaster when it comes to the outside study which must accompany the class work. As some one has said, a lesson is like a photographic plate: the text book is studied prior to class—the exposure; the instructor in class attends to the developing; and this in turn is followed by supplementary home study—the fixing. If the fixing is omitted, the image is evanescent, and much of the instructor's work is without lasting benefit to the student. Is it surprising that the student fresh from the high school, used to discipline and to a taskmaster, is apt to omit the "fixing"? He may realize in a general way that home study is necessary. But there are the theater, ball games, and other diversions. So Monday's work is postponed to Tuesday; on Tuesday something interferes, and the work of two days must be laid aside for a more opportune time, which, strange to say, fails to materialize. Naturally, work accumulates in geometric ratio, and before the student realizes the situation he is hopelessly behind. And this student may have been a success in high school. The secret of his failure is that he has not learned to boss himself—to be his own taskmaker. A few institutions, recognizing the difficulties incident to the transition from high school to college, see to it that the new student gets the *personal* attention of some member of the faculty, who acts in the capacity of adviser, and helps the student to adjust himself to the liberal government of the university or vocational school. It should be remembered, however, that some students are slow to enter into cordial relations with their instructors. When such relationship has finally been established, and the

student has become convinced that the motives of his adviser are really altruistic, he may, unfortunately, already have passed the stage during which recovery is possible. So we find, frequently, that more effective than an instructor's counsel is the advice from other sources—from the preceptor, or from a friend who has recently graduated. Strange to say, very few students enter college forewarned and hence forearmed. The young man who is planning a tour, the young lady contemplating matrimony, the old man who would "a-fishing go"—can find plenty of literature embodying the experiences of others. But the prospective pharmacy student will search in vain, even in the Boston library, for any article which could shed the light of experience upon his path. It seems that the "old grad" is loath to tell tales out of school—in print. And so each generation of pharmacy students is forced to travel (in this respect at least) on an unblazed trail.

Still other failures at college may be traced to the antipathy which the students involved manifest for so-called theoretical subjects. Many a pharmacy student enters upon his college work imbued with the opinion, which in some cases amounts to a deep conviction, that a retail pharmacist has no more use for science than "a frog has for tail feathers"; so he takes the theoretical work because it is obligatory, not because he expects to find it of practical use after graduation. Now is it not true that it is against human nature to do well work which is not considered useful, but is looked upon as a mere graduation requirement? Accordingly, the inevitable result is—unless the student's attitude is changed, and that at the outset—that he gets behind in the foundation subjects. Naturally, the more he gets behind the more distasteful does the subject become; and as the distaste develops he finds it more and more difficult to carry the work. We have here another vicious circle, in which cause and effect change places in rhythmic regularity.

No other vocational schools—surely not schools of engineering, or of medicine, or of agriculture—find it incumbent upon them to combat this invidious influence which endeavors to exalt commercialism by belittling scientific attainment. And we have here one, though not the only one, of the reasons why the percentage of failures in schools of pharmacy is exceptionally high.

Every college man of discernment recognizes the fact that retail pharmacy is a business; that commercial skill is desirable, indeed, is necessary. But as long as we have compounding and dispensing of medicinal materials, Pecunia must in Pharmacy remain wedded to Science: there can be no divorce. And as long as we have practical pharmacy in our curriculum, there must be the foundation for it. No house—nothing but a shack—can be built without a foundation.

So in conclusion: If you, Mr. Pharmacist, can send your clerk to college properly forewarned against the dangers of procrastinating habits of study—if you have inculcated an appreciation of thoroughness—if he has been made to realize that the public has a right to expect scientific and correct compounding, just as it has a right to expect unadulterated drugs—in short, if he has been taught to look upon pharmacy not as a refined method of separating the public from its money, but as an essential part of the world's work—you have done much to prevent his falling into the waste from the educational mill.

THE AIM OF PHARMACEUTICAL EDUCATION.

RUFUS A. LYMAN.

A perusal of the minutes of this section for a number of years back might lead one to think the further discussion of the subject of this paper to be superfluous. The time devoted to it, not only in the national but in the state associations and local branches and the space given to it by the pharmaceutical press shows the interest taken in, and the importance of the subject. Because of this fact, the writer believes the interchange of views at this time especially appropriate. Adverse criticism, coming largely from men engaged in the actual business and practice of pharmacy, has in recent years been directed towards the present day methods of pharmaceutical instruction. The statement is made that the curriculum is too academic, that the instructors are not practical men, that graduates in pharmacy are not at once practical druggists, that students are permitted to enter upon the study of pharmacy with little or no drug store experience, that the schedule is so full that there is no time for store experience during the college course, that students get no or a limited amount of instruction in the commercial aspect of pharmacy and so on *ad infinitum*.

The pharmaceutical curriculum as we now have it, is an evolutionary product. There has in recent years been a tendency on the part of school men to eliminate store experience as a requirement for entrance to or graduation from a school of pharmacy. Very few schools require either at the present time. It is interesting to note in how many catalogs we now find this statement, "Experience is not made a requirement for graduation from this school." It is an indication of what has been. It is probable that even that reference will soon be omitted. Now it seems that many good men take this to mean that the schools are making a special effort to minimize the importance of store experience. This is not so. Rather is it an attempt on the part of schools not to assume the responsibility for something for which they are not responsible and over which they have no control. There is a close connection between state universities and the secondary schools. In most Western states at least, a secondary school inspector is employed by the state, whose sole occupation is to investigate the work done in the secondary schools of the state, and to see to it that a required standard is maintained both as to the course given and the type of instructors employed. Suppose we require a year of store experience for entrance to our schools of pharmacy—how shall we determine the value of that experience—can the state be induced to maintain a salaried inspector for the purpose of passing upon the proficiency of the various proprietors in the state as instructors—or could it be gotten at through an examination? If so, how, and what would the applicant be expected to know? The same difficulties are met with when we come to pass upon store experience for graduation. It is logical that a school should be responsible only for what it teaches. No one denies or wishes to minimize the importance of store experience in the making of a finished pharmacist. The time when it should be acquired is the disputed point. The writer believes there is no question but that it should follow the study of the fundamental branches.

Everyone is familiar with the changes in the system of medical instruction in recent years. A few years ago such instruction was given only in the office of the preceptor. With the beginning of didactic and laboratory medical teaching, the importance of the preceptor began to wane until now he is unknown. Today no allowance in the way of credit or otherwise is allowed by our medical schools for experience acquired either in a physician's office or in a hospital. Medical men have long since recognized that in order to cope with the complex medical problems of today, it is necessary that the student be trained in the fundamental sciences, by the application of which medical problems are solved. The smattering knowledge, the isolated points which he may "pick up" by coming in contact with professional men are of little value to him. For years we have been telling the graduate in medicine of the things he will have to unlearn when he leaves school and enters the actual practice of medicine. But what a student who has obtained some scattered information through experience, must unlearn when he enters a modern medical school, can be appreciated only by those of us who come in daily contact with him. Our best medical students, as a rule, are those who have never come in contact with practitioners, never had any kind of a position about a hospital until they have reached such a point in their medical training that they are in a way to comprehend the problems presented. It is true that neither pharmaceutical education nor legislation has yet reached the same stage of development as has medical. Yet if pharmacy is a science, if it does have problems which require solution, why do not the same general principles apply in preparing the student for his work as applying in medicine?"

In my own state, my older pharmaceutical friends tell me that they think we should require at least one year experience in a store preliminary to entering the university. The argument which they advance is this, "A boy working in a store will learn what a funnel is, what a burette is and become familiar with the big botanical names, which are always a source of trouble, etc." The argument is weak. The funnel he should have learned to recognize years before when he used it to fill the jug from the old oaken bucket. Whether it be made of tin, glass, copper, or rubber, it should not long puzzle his imaginative mind. So far as the burette is concerned, most students would come to us unprepared. And finally, had he studied Latin grammar a year or so in the high school, botanical names would have been robbed of most of their terror. The members of the examining boards the country over, are practical pharmacists. After a student has had his school training, it seems logical that the members of the examining board are in a position to judge best when the applicant's practical experience has been sufficient to admit him to registration.

The profession has often accused pharmaceutical instructors of being impractical men. I take this to mean that most instructors in schools of pharmacy are not engaged in the actual practice and business of a druggist. This is undoubtedly true, yet it need not mean that such an instructor is not aware of the actual problems of the drug business. In every line of educational work we meet with the same condition. It was only a few years ago that in medicine, the chemist, the physiologist, the anatomist, the pharmacologist, were all practitioners. Now the practitioner-teachers have given way to the research-teachers, who know little of the actual practice of medicine, but better than any one else the actual problems

of medicine. And who will gainsay that these students who receive their training from these men will make better practitioners than those of a decade or two ago? This same policy with the research type of teacher is even being extended to clinical medical teaching.

The average student's mind shows a perversion with reference to the purpose of pharmaceutical training. The all-important question to him is how to pass the state examining board. To him, that examination is the only obstacle in his path to future progress and prosperity. His idea is fostered by certain institutions, that make it a business of all but guaranteeing to a student the assurance that, for a certain consideration, they will, in the space of from three to six months, put him in position to pass any board in the Union. The sad part of it is, that in the majority of cases they can do it, too. Another type of institution advertises the "Come at any time, stay as long as you can, pay only for what you get," or, "We do not charge exorbitant prices and our students pass the board." Recently the writer heard a prominent Eastern pharmacist say that the day of the diploma mill had passed. Certainly he is not conversant with conditions in the Middle West. It has become chronic for the prospective pharmacy student to inquire, "Do most of your graduates pass the state board?" Even more respectable schools have played to the galleries and in the senior year, instituted courses which consist of a more or less extensive cramming of the compiled lists of board examination questions. This gives the student the impression of its being the chief end of pharmaceutical training. I have known cases where the giving of such courses has been the factor which caused a young man to make the final decision in the choice of his future alma mater.

There has been a popular demand for courses in our schools which familiarize our students with the commercial side of pharmacy. Some of us, in an attempt to please our friends, have introduced such courses under the names of business methods, accounting, etc. They consist of a few lectures, or at best of one or two hours a week for a semester. Such courses may be entertaining to the student, but they have little or no educational value. Such information can be acquired to much better advantage, under present conditions, by store experience.

It is impossible to add more courses to the curriculum without lengthening the course another year. This would meet with much opposition from certain quarters. And it is impossible to outline a course of study of any length which will cover each and every phase of work that may arise in pharmaceutical business and practice. Why should we not in pharmacy, as we have in medicine, forget that there is a separate general chemistry, general botany and general physiology for students of pharmacy? Chemistry is chemistry, botany is botany, and physiology is physiology, no matter which variety of student we may have before us. The writer maintains that the reform most needed in our present method of teaching is to so train students in the fundamental sciences that they acquire independent methods of work and ability to apply such methods to the study of the problems, varied as they are, which the business and profession presents. Such training will elevate the professional status of pharmacy and can in no way injure pharmacy as a business.

THE JOURNAL OF THE
PROPOSED NATIONAL LEGISLATION AFFECTING PHARMACY.

FRANK H. FREDERICKS, LL. B.

At no one time has there been pending in Congress so much proposed legislation, vitally affecting pharmacy, as at the present. Within a year the national law-making body is likely to act on three very important measures, on all of which the pharmacists of this country should be heard, and regarding which they ought to be of practically one mind and one voice in order to avoid direct harm to their business interests, and in order to assure the largest measure of public good. Every organized body of pharmacists would apparently fail in its duty if heedless of the proposed anti-narcotic law, of the proposed law to establish a Department of Health, and of the proposed amendment to the Food and Drugs Act. The pharmacists of the country should be in the very foreground to point out what in this connection is needed, and what would be harmful; to insist upon such provisions which will best accomplish the desired purposes, and which will advance pharmacy rather than retard its progress.

It would be quite impossible to here give extended consideration to the various legislative proposals but it may serve a purpose to touch as briefly as circumstances will permit, upon some of the features which appear in each of these measures as directly concerning pharmacy and the retail druggist.

THE FOSTER AND MANN ANTI-NARCOTIC BILLS.

Undoubtedly the greatest credit for restrictive legislation governing the sale and use of narcotic drugs, belongs to the pharmacists of this country. Up to this time, such legislation has been limited to the different states. Its enforcement, wherever successful and effective, has rested almost entirely with Boards of Pharmacy, and through this source there has been demonstrated the entire insufficiency of state legislation in order to effectively curb the habit forming drug evil. It is natural, therefore, that from among the pharmacists in different parts of the country, should come a demand for national legislation. It must be granted that in demanding such legislation pharmacists place restrictions about themselves, and yet for the public good, they are not only willing but glad to do so. Such being the case, is it not proper and just, that they should have a large voice in framing this necessary legislation? A little more than a year ago there was introduced by Congressman Foster, of Vermont, the first bill on this subject, which during the present special session of Congress has been followed by another bill introduced by Congressman Mann, of Illinois. The purpose of both bills is undoubtedly the same. The means for accomplishing the desired purpose are entirely different. In the Foster bill, proper control over this traffic is sought by an exercise of the power to tax, while under the Mann bill a similar result is sought under the power to regulate inter-state commerce. The Mann bill, though by far the simpler of the two proposed measures, seems to be defective, in that it is very doubtful whether the intended method, under an exercise of the power to regulate inter-state commerce, is constitutional. This method consists in limiting transportation of such drugs to physicians, dentists, veterinarians and manufacturers, jobbers and retail dealers in drugs. Undoubtedly this would be an indirect

exercise of the police power, which belongs exclusively to the different states. It would seem that while Congress may prescribe what shall and what shall not enter inter-state commerce, it nevertheless cannot say who may or who may not be engaged in any particular class of inter-state commerce. Then again, while the evident intent of the Mann bill is to limit the final traffic to the retail drug trade, such intent will fail entirely in that so far as the national government is concerned, any individual may be, or may become, a retail dealer in drugs. Failing in this essential respect, it would seem that the present Mann bill must fail entirely. Now as regards the Foster bill, which seeks control over the distribution of habit-forming drugs, through the taxing power, there can be no doubt but that in the exercise of such power, sufficient control can be secured and the writer believes that this can only be done by such exercise of the taxing power. However, as originally introduced by Congressman Foster, his bill will work considerable hardship, especially upon the retail druggist, and seems to involve an unnecessary amount of red tape. There can be no good reason at all for requiring retailers to be bonded; there can be no sufficient reason to require retailers to keep books of every sale, and to make returns; there can be no excuse whatever for taxing the domestic manufacturer on his imports of opium, cannabis, coca leaves, and allowing foreign manufacturers to ship into this country without being subject to such tax, the salts and derivatives of these drugs, unless the tariff duty provides for this feature, which is not believed sufficiently to be the case. It is a question also whether preparations made on physicians' prescriptions should be exempted, though the possible harm from such exemption may by far overcome the possible need for it.

If the present Foster bill be so changed as to embody the special tax which it is intended to levy on the retail dealer or distributor at retail, in a retail druggist's license, to govern the sale of liquors for medicinal and pharmaceutical use, as well as for the enumerated habit-forming drugs, making the tax \$25.00 per annum, then this feature should be highly commended. The proposed tax of \$1.00 for the retailer is entirely insufficient to prevent any one from becoming an authorized retail dealer in such drugs, while a tax of \$25.00 would more likely accomplish this, and if it included at the same time the right to sell liquors for medicinal and pharmaceutical purposes, it would do away with the need for pharmacists to be classed as retail liquor dealers. If, further, the retail dealer would be exempted from the requirement to keep books, render returns and to give bond, and if finally the foreign manufacturer of salts and derivatives from the drugs are not given an advantage over domestic manufacturers, then the Foster bill, so changed, should find the general approval of the pharmacists of this country.

THE OWEN BILL FOR A DEPARTMENT OF HEALTH.

Possibly no single proposed legislative measure has attracted a wider attention in medicine and pharmacy than has the bill of Senator Owen to establish a National Department of Health. Not alone in Medicine and Pharmacy has commendation or criticism been plentiful and bitter, but to an almost equal degree, the people as a whole are interested. Many, well known for their interest in the cause of Pharmacy, at first assumed an uncompromising position against such legislation, and by means of prejudice and otherwise a great portion of the laity were ar-

rayed against it. Within the last six or eight months a change in this respect is to be noted, which leaves the strongest opposition to the establishment of such a department, against cabinet officer to be at its head, and to the wide and far-reaching scope of authority which the Owen bill would give.

It does not seem possible to make a well-grounded objection against combining all of the various activities of the national government concerning the public health, and to placing them in one department. It must be apparent to even the unthinking, that with proper limitations such a change would work immeasurable good. It is difficult, also, to find a well-grounded objection toward making the head of such a Health Department, an executive officer in the Cabinet of the President. Surely, the health of our people is quite as important as is any other department now so represented. The real objection as made up to the present time, must be found in the danger of unlimited and uncontrolled authority, and it would seem that this should not be impossible to overcome. The Owen Bill as now pending in Congress provides for a director of health, and for an assistant, who shall be known as the Commissioner of Health; it provides further for eight bureaus to take care of the various activities, and provides finally for an Advisory Board at the discretion of the Director of Health. From a pharmacist's viewpoint the objection to the present bill should be that a joint Bureau of Foods and Drugs is provided for, when there should be separate bureaus, since pharmacy and drugs are quite important enough to be given over to a separate bureau. There should also be a Bureau of Chemistry, and all of the various bureaus should be each in charge of a supervising officer, especially fitted. The proposed Advisory Board should not be and should not rest in the discretion of the Director of Health, but should be a fixed part of the new department. Such Advisory Board should be appointed by the President, and its membership should include at least one physician, one chemist, and one pharmacist. All important matters pertaining particularly to innovations, should be decided upon by said Advisory Board, and said Board should be open for the appeal of any individual or set of individuals, and in every case the decision reached by such Advisory Board should govern and control the administrative course of the Director of Health, and his department. It is entirely out of the question to here enter into a discussion of all of the different features of the Owen Bill, but with proper representation for Pharmacy and with safeguards provided by the institution of an Advisory Board with final authority, so that autocratic and inconsiderate exercise of authority is safeguarded against, there does not appear to the writer any further vital objection from the pharmacist's viewpoint.

RICHARDSON AMENDMENT TO THE FOOD AND DRUGS ACT.

The decision of the Supreme Court in the Johnson Cancer Cure case almost immediately resulted in a special message from President Taft, pointing out the need for an amendment to the Food and Drugs Act. In keeping with this message, Congressman Richardson introduced a bill, known as H. R. No. 12,315. A single reading of this bill makes it evident that Congressman Richardson proposes to go far beyond the legislation recommended by President Taft. Three separate amendments are provided for in the bill, the first of which as an Amendment to Section 6, includes a further definition of the term "Drugs," and of the

term "Food," and may be regarded as comparatively unimportant. The other two are proposed Amendments to Section 8, and the second of these seems fully and completely to meet the needs which have arisen since the decision of the Supreme Court in the Johnson Cancer Cure case, and for that purpose should find no objection. However, the first proposed Amendment to Section 8 is extremely far-reaching, and would have a decided influence on the so-called "Patent Medicine Business." In fact it would have a tendency to leave little or no business for the Patent Medicine Man. The section seems loosely drawn, and it is difficult to decide upon its exact meaning, but it would seem to provide for the following, as a "misbranding" within the meaning of the Act.

First. In the case of preparations represented to have curative properties, if the compounder or vendor is not authorized under the law of the state or community, where the article is offered for sale, to practice medicine or pharmacy.

Second. If labels, advertisements, posters, circulars, etc., contain a description of symptoms of diseases.

Third. A drug offered for sale to the laity, directly or indirectly, which contains acetanilide, antipyrine or some fifty other drugs or their compounds, preparations or derivatives. A further requirement in this respect that the label shall bear the name of such drugs does not make it entirely clear whether the author intends that all drugs or preparations containing the enumerated articles shall be misbranded, just because they contain them, or whether they shall be considered misbranded if they contain them and do not bear the names on the label.

Now as with regard to the first provision, it must be kept in mind that it applies to Inter-state Commerce alone, and as it reads at the present time it would be necessary for a compounder or vendor of a preparation represented as having curative properties residing in Massachusetts, to be either authorized to practice medicine or pharmacy in New York before he might be permitted to offer said preparation for sale in New York. Of course, this may not be intended, but it is the plain interpretation of the proposed amendment, and even if it should mean that the compounder or vendor must be authorized to practice medicine or pharmacy in his home state, it is a serious question to contemplate the far-reaching effect of such a provision. It must be kept in mind that none of the preparations now put on the market by co-operative drug houses, and none of the non-secrets as are sold by retail druggists, are to any large extent compounded by authorized practitioners of medicine or pharmacy. They may be prepared under the supervision of an authorized pharmacist in the state of manufacture, but would this meet the requirement of this proposed amendment? Then again it is a question whether the time is ripe in this country for an endeavor to do entirely away with the Patent Medicine business. Purely from a business point of view, it must be considered that for a large part of the retail druggists in this country, the sale of patent medicines constitutes a profitable source of income, which it is doubtful of supplanting by something else equally or more profitable, so long as an army of dispensing physicians exists everywhere, and so long as these can go unhindered. It is quite likely that the patent medicine using public would turn in the direction of the dispensing doctor. It is a question also whether Congress

has the constitutional right to limit the compounding of curative preparations to authorized physicians and pharmacists.

As with regard to the second provision which would prevent a description of disease symptoms, it must be admitted that this is a desirable provision, but as it reads at present, it is without limitation, and some one in the exercise of authority, might under it prevent even the most harmless statements.

As with regard to the third proposed feature of the first Amendment to Section 8, it is of course likely that the author meant merely to require preparations containing the named drugs to be so labeled, and if this be the intention, then with proper change carrying such intention into effect, there is possibly no well grounded cause for objection.

While considering generally amendments to the present Food and Drugs Act, it is a question also as to whether the deviation from the standard of the Pharmacopœia and of the National Formulary, as now permitted under the Federal Act, should not find attention. Such permitted deviation has been strongly and very generally criticised, and the claim is made that it caused an injury to the legitimate pharmacist. No doubt those who favor such deviation have strong and plausible reasons for doing so, but since amendments are contemplated it would no doubt be well to express the views of this Association at this time.

In closing, I trust that I may once more be permitted to point out the urgent need for having a thorough understanding on the proposed National Legislation, and a working in harmony such as will enforce a proper respect for the wishes of the pharmacists of this country by the law-making body.

STATE PHARMACEUTICAL ASSOCIATION PROCEEDINGS.

H. M. WHELPLEY, M. D., PH. G.

The volume of proceedings of the annual meeting of a state pharmaceutical association preserves in permanent and convenient form the official records of the convention. It is not necessary nor is it always advisable to have the minutes complete, but what is recorded should be accurate. The volume should be of immediate interest to all of the members of the association, of general interest to editors of pharmaceutical periodicals, to state association officers, board members and others who are expected to keep in touch with the topics of the times during the convention season. The book deserves a place on the shelf of reference books in both college and drug-store libraries. A collection of complete sets from all of the states would prove of great historic value as well as of service in everyday literary work by pharmaceutical writers. As far as I know, the Lloyd Library has the only complete collection of state association proceedings. I now come to the consideration of a debatable purpose of the published volume of state pharmaceutical association proceedings. I say debatable because few associations seem to consider the annual report to be a source of news and demand its early publication. At one time, the pharmaceutical press gave full and prompt accounts of all the state meetings but at the present time with forty-four such organizations and at least one-half of them holding the annual convention in June, it is no

longer possible for drug journals to do the subject justice. I have for several years felt that the members are entitled to the annual report within a month of the close of the meeting. This year, I mailed the proceedings of the Missouri Pharmaceutical Association two weeks from the day the convention closed. I have been asked by several secretaries to explain how this was done and these questions are my excuse for presenting my views on this subject.

Stenographer. First of all, we must have a stenographer who is competent to take down the discussions and readily read the notes. Do not give the work to some one who is anxious to have the practice. I have had but three stenographers during nineteen years. I coach my stenographer before the first meeting he reports so that he knows the general style to be followed in preparing copy. He typewrites his notes each day and usually hands me the complete manuscript the day following the close of the meeting.

I edit the copy at once while the convention work is fresh in my mind. I prepare each page and call on the printer with all of the copy in consecutive order ready for the compositor.

Printer. I secure bids for the work at a flat rate of so much per page including the use of cuts and printing of inserts. The proportion of ten, eight and six point type is indicated in the copy; no extra charge is made for authors' corrections. I leave it to the printer to designate in his bid how soon the bound volume can be delivered. I have the envelopes printed and addressed while the volume is in press and mail the reports the day they come from the bindery. In other words, I get out the proceedings as an editor does a journal, on schedule time.

Size of Page. It is to be regretted that the secretaries of the different state associations have not adopted a standard size for the volumes of proceedings. I use 70-pound super calendar (S. & S. C.) paper 25"x38", which cuts to an advantage and trims, 6x9 inches. I consider this to be about the right size but am ready to adopt any size that the majority of the associations consider the most suitable.

The Cover. A few associations bind the report in cloth. I have never considered this to be worth the additional expense. Such covers must be removed when the reports are bound in a single volume. We should encourage the members to bind the reports every three or five years.

Index. This is the key to the situation and should be ample as well as correct.

Inserts. Full page pictures should be printed as inserts, faced with tissue paper. I print a picture of the retiring president and such other pictures as are convenient. These usually include some of the ex-officers, the life members who are present, the officers for the ensuing year, the board of pharmacy members, etc. Large groups do not reproduce to an advantage. It is better to devote the space to smaller groups which enables the members to recognize each person.

The Board of Pharmacy. In states where the board of pharmacy issues an annual report as a separate volume, it is not necessary to give much space to the board. In states where the board does not print an annual volume the state association report should contain the state pharmacy law and all the rules and regulations of the board of pharmacy.

Fraternal Relations. Each of the following associations should be accorded a full page: The American Pharmaceutical Association, National Association

Retail Druggists, American Conference Pharmaceutical Faculties, National Association of Boards of Pharmacy.

Organization. It is well to publish each year the list of those who attended the organization meeting and accompany the same with a few words about the first meeting.

Minor Points. Many things will occur to the secretary who studies to make the annual report useful and convenient for the members. I might mention the following: Give date of organization and date of incorporation; state the date to which the list of members is corrected; print life members in bold face type and explain the meaning of the same; use a star to indicate each one who was present at the annual meeting; at the end of the list give the total number of members. Of course, the committees, delegates and lists of ex-officers as well as dates and places of past meetings should be given in a prominent place.

I have suggested on previous occasions that the secretaries of the state associations who attend A. Ph. A. meetings meet in a formal manner and discuss subjects of mutual interest. Such conferences would result in secretaries becoming more efficient officers.

NEW SOURCE OF POTASSIUM SALTS.

At present Germany controls practically the world's supply of potassium salts, which are more needed by the farmer than by the druggist, so that the report of a new source of supply of potassium will be welcome to all. Recent work by the field experts of the Department of Agriculture has proven that the United States has an almost inexhaustible supply of potassium in the kelp beds of the Pacific coast, and high yields of this indispensable metal have been obtained by them from what was hitherto considered a nuisance to bathers and fishermen. Kelp, a marine growth, has long been used as one of the sources of iodine until the discovery of the brine wells of western New York, Michigan and other lake states, but only recently have the properties of the vast kelp beds of the California coast been thoroughly investigated. These beds are of enormous extent, some of the plants reaching a growth of a hundred feet in length, and tests have shown that dried kelp will yield from 20 to 25 per cent. of potassium chloride when treated by proper methods, and the byproducts, iodine, etc., may possibly be made to pay the cost of the extraction of the potassium salts. This particular variety of seaweed seems to have a selective power of absorption for potassium salts, rejecting the sodium salts in sea water in preference to the much smaller proportion of potassium salts contained therein, and the potassium so absorbed by the living plant can be very readily extracted in the form of potassium chloride or other salts. In order to prevent the wasteful exploitation of this newly discovered wealth steps are being taken to preserve the present kelp beds and to provide for future growth and supply.—*American Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

A FEW QUESTIONS SUGGESTED BY COMPARISONS OF THE NATIONAL PHARMACOPŒIAS.

OSCAR OLDBERG.

The twenty national pharmacopœias differ greatly in many ways. Among the differences between them are the following, which I mention as illustrations:

The Pharmacopœia of the United States (Ed. IX, or "Eighth Revision") is a book of about 350,000 words, and describes about 1000 drugs, chemicals and preparations.

The Swiss pharmacopœia (Ed. IV) contains 853 articles or titles described in about 192,000 words.

The German pharmacopœia (Ed. IV, soon to be replaced by Ed. V) gives 108,000 words to 627 titles.

The Swedish pharmacopœia (Ed. IX) devotes 105,600 words to 685 titles.

That of Finland (Ed. IV) gives less than 30,000 words to 439 titles.

The new French Codex of 1908 is a book of a thousand pages from cover to cover and contains about a thousand titles. It is a great improvement upon the previous edition but differs so much in its general construction from the other pharmacopœias that it can not be briefly compared with them.

The examination of the texts with the view to discover the causes of these great differences has taught me some profitable lessons.

The American pharmacopœia (Ed. IX) contains, besides the 513 pages of text numbered in common numerals, 75 pages of introductory matter paged with roman numerals, and an appendix of over 120 pages not including the index.

The practical question might be asked: Cannot the size of our pharmacopœia be materially reduced without disadvantage? Is it desirable to devote as much as ten pages to the "historical introduction"?

The national pharmacopœia of any country is a document so important that a year is not too long a time to devote to the consideration of such general questions as are herein suggested, and to so much of the recommendations of the Brussels Conference as concerns the proposed uniformity in pharmacopœial nomenclature. The conference proposals relate only to "potent remedies," but it is improbable that any pharmacopœia will adopt more than one system of nomenclature.

The writer of this paper believes that a consistent technical pharmacopœial nomenclature is highly desirable. At the same time it is of the utmost importance that when prescriptions are written for medicinal substances contained in the

pharmacopoeia such medicines shall be ordered under their principal pharmacopoeial titles according to which they are arranged alphabetically in the body of that book.

So important is this phase of that question that everything within reason should be done to promote a favorable attitude toward the pharmacopœia among the physicians, and we should avoid doing anything that may operate against it.

There are already in our pharmacopœia some titles which have had an unfavorable effect in the direction referred to.

A number of physicians of the highest standing declare that they have not found it difficult to master the long titles recently introduced and that they are pleased with them. Others use them under protest. Still others, of equally high professional standing, say that they are too busy to seriously consider any proposition that they learn and use a new style of prescription writing different from that to which they are accustomed. They will not lay aside their present way of writing until after it shall have been demonstrated that the public welfare, medical science, and the welfare of their patients will be promoted by the change proposed.

There are countries in which the government can introduce mandatory regulations which will be at once obeyed without question; but in America an order to the physicians that they must use one name but not another in writing their prescriptions would meet with derision.

If we have done aught to hinder a more free use of the pharmacopœia by the doctors let us by all means seek to mend the damage by henceforth pursuing an opposite course.

The pharmacopœia and its full and free recognition and use are so important to the American Pharmaceutical Association and to all pharmacists that a special section to be called THE SECTION ON THE PHARMACOPŒIA should be at once created. Such a section is of greater importance than any other and we should have started it earlier. I wish to freely confess my share of responsibility for the strange omission.

The Pharmacopœia should no longer be a side issue of some other Section.

CHOCOLATE CHACHETS.

FRANKLIN M. APPLE, PH. G.

Every pharmacist who has a clientèle of prescribing physicians, undoubtedly has been called upon at times to devise ways and means whereby the physician could administer medicaments in a diplomatic manner, so as to overcome the objections of the patient to the older forms of medication, and at the same time give to the patient the full dose of remedial agents indicated. This trouble is usually encountered in children, who are petted by their parents, making it necessary for the physician to resort to unsuspected forms of medication.

A modern motto reads as follows: "A diplomat is one who conceals a lump of sugar in each lemon he hands out," but in the form of medication to be de-

scribed the above motto should be reversed for the sweetening portion of it is on the outside—in fact constitutes the greater percentage of the finished product.

Having encountered an exceptionally obstinate child, who was in need of a hepatic stimulant, a physician appealed to us for assistance in devising a pleasing form of medicine to meet the case. The first resort was to chocolate marshmallow drops into which the drugs were carefully introduced, taking care to leave no traces of the work done upon the confection, but this did not appeal very greatly to the patient, hence we were compelled to search further for our diplomatic ally. The reward for our experiments and trials was discovered in the form of what are known to the confectionery trade as Ceylon Wafers. These are small discs, flat upon one side, and rounded upon the other side, made of sweetened, flavored chocolate.

The discs were carefully hollowed out into a cachet-like container, into one of which the drugs were carefully placed. Another disc was then coated with heated chocolate syrup or Mucilage of Acacia and placed upon the drug-laden disc, when they were sealed together smoothly—the finished product showing no evidences of the deception to be played upon the unsuspecting objectors to medication for their ills.

These cachets were readily taken by the patients to whom they were administered, with the desired results. Certainly this form of administering drugs will not permit of bulky doses or unpleasant tasting drugs, but from our experience, it offers a method of combating unruly patients, who have a fondness for chocolate sweets.

The neatest products will result if the discs are carefully selected, so that they are of one size, and in warm weather, if rubber finger tips are worn so as not to dim the luster of the exterior of the cachets.

A FEW PRACTICAL HINTS.

LOUIS SCHULZE.

SOL. MAGNESIUM CITRATE.—Having strong faith in sterilization as a preventative of the formation of fungus growths in solutions of chemicals, for somewhat over a year we have prepared this solution by heating the distilled water to the boiling point for about half an hour, then adding the magnesium carbonate and citric acid; after the reaction has ceased, bottle while still hot, add the potassium carbonate and cork securely.

Thus we have been able to obtain a perfectly clear solution which remains so until the lot prepared at one time (usually one dozen) has been dispensed: since using this method we have found our sales of this popular remedy have increased, hence have come to the conclusion that there must be some improvement in the method that makes the final product more acceptable to the trade.

CHALK MIXTURE.—Time being a valuable consideration to the busy pharmacist, some few years ago we conceived the idea of adding to the Compound Chalk Powder an amount of oil of cinnamon equivalent to the amount contained

in sufficient cinnamon water to form a definite quantity of Chalk mixture, and have found this a quick and easy method of preparing the mixture when needed; namely, by weighing sufficient of the Compound Chalk Powder containing the oil and adding thereto the required amount of distilled water.

LIME WATER.—We have had most excellent results in maintaining a strictly U. S. P. article of Lime Water by preparing it from a Calcium Oxide which is marketed in air-tight tubes, each containing sufficient to make one gallon on addition of the required amount of distilled water.

We have found this a rapid and convenient way of preparing this article in a form to meet the official requirements, an important matter in these days of pure food and drug laws.

COLLECTIONS "ON ACCOUNT."

In regard to current accounts with credit customers, it is always well to mail a statement at the beginning of the year. A certain percentage of people straighten out their financial matters at that time, and these people will pay their bills. Another class, dubious pay, make an effort to do better with the advent of a new year, and it is just as well for the druggist to take advantage of the spasm of reform and get something on account.

One druggist says: "When a man gets to owing me more than he can pay me in a lump, I do not mention the amount of the bill, but go after him hammer and tongs for something on account. If I can get him to make a couple of payments on account, I often get the bill reduced to a figure that does not scare him or make him decide to jump me altogether. If I went at him for the full amount, a sum that he could not possibly raise, the chances are that he would get sulky and let the entire bill go by the board."

This is good reasoning, and a number of druggists follow it, going after something on account until they can get the bill reduced to some extent, and then making a strike for the full amount. Suing a man is always a risky business, and it is well to avoid doing this whenever you possibly can. A young, hot-headed merchant often threatens suit, but the older he gets the more willing he is to keep out of a lawsuit. There's nothing in making enemies. You will pick up enough in the ordinary course of business as you go through life.—*National Druggist*.

FAILURE SHOULD NOT DISHEARTEN.

"High ideals, noble efforts will make seeming failures but trifles, they need not dishearten us; they should prove sources of new strength. The rocky way may prove safer than the slippery path of smoothness. Birds cannot fly best with the wind but against it; ships do not progress in calm, when the sails flap idly against the unstrained masts."—*William George Jordan*.

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

THE SHOW WINDOW AS AN ASSET.

B. E. PRITCHARD.

In my home city there is a firm engaged in the business of drug merchandizing in a retail way, but in a rather strikingly wholesale manner. This concern occupies store rooms on seven of the most prominent thoroughfares, and its annual rentals mount into figures that sound somewhat startling to a retail druggist. I have exact knowledge only as to the rental paid for three of these locations, and feel that the other four will measure up proportionately.

These that I quote run, respectively, \$12,000, \$10,000 \$6,000. This firm believes in and practices advertising in a large way. Newspaper space and large, attractively painted sign boards, located at prominent points throughout the city and its environments, it uses constantly. This matter of publicity is rarely used, however, in a manner to cause demoralization. At one time in my official capacity, in company with other officers of our local organization, we interviewed the manager of this concern with reference to securing his co-operation in the maintenance of a fair schedule of prices and reasonable methods in the competition for business, in which it is a pleasure to say we were successful, and thus this strong chain of seven big stores continues to this day to help maintain good conditions and to play fair with the smaller stores, to an extent that is very gratifying, considering the possibilities within the power of such large buying capacity.

While, as has been mentioned, this concern practices the science of advertising in a large way in its campaigning for business, it depends mostly for returns upon the proper use of its show window displays. The firm employs an expert display artist, Mr. Wm. T. Gwyer, who, after the manner of most men who thoroughly know their value in any line of endeavor, is modest, quiet and thoughtful in demeanor. It has been my good fortune to have for some time enjoyed the acquaintance with this man, and to have at times conversed with him concerning his methods, and in this paper it is my purpose to draw largely upon the information obtained during interviews upon the subject here being treated.

Before entering upon this field of information, however, permit me to explain that Mr. Gwyer does not personally do the actual work of trimming his windows, no more than does an architect with his own hands put into material form the structure that he designs.

The windows, as well as the very large number of show cases used in the seven stores that are under his care, are all arranged by a corps of helpers, the

members of which work from designs originated by this artist in his studio, and the sketches for each individual window or case are worked out by his hand with pen, pencil and brush. When the work is completed and approved the designer takes a flash light picture of the display which he carefully dates and notes the nature of the article or articles used therein, this information and picture are then filed in a portfolio. While any display is on, a record is kept of results in the matter of sales during its life, which is made a part of the information accompanying the picture. Thus the drawing power of every display ever made and its selling value is accurately known, which forms a most valuable source from which to draw inspiration for future displays.

Mr. Gwyer contends that it is quite as necessary to use the windows, the awnings, and, in short, the outside as well as the inside of the store as it is to use good newspaper copy. Although newspaper space is costly and most of your advertising appropriation must go that way, it does not follow that the best advertising is confined to newspapers, as a matter of fact we consider our window space of even greater value as an advertising medium.

The selling force of a good window trim is often overlooked. Almost any form of advertising will show results, but window advertising is the least expensive and the results are almost immediate. It arrests the attention of the passer by as no other form of advertising can, and it is but a step into the store while the desire to purchase is still fresh in mind. The merchant who wisely uses his windows brings into his store the possible purchaser of a commodity that has been widely advertised in magazines and newspapers, and the window acts as the proper connecting link between newspaper and store.

Some druggists, I know, look upon their windows as a sort of nuisance, and under such a condition the passer by who looks into them is led to agree with that view. Men are usually judged by the clothes they wear; the drug store is, in like manner, sized up by the condition of its show windows.

As a rule window trims should not remain unchanged more than one week. The fewer the windows the oftener the display should be changed. Every trim should have an appropriate show card, or a number of them. Signs should at all times be accompanied with price quotations. A display of any sort of goods in a show window without business-like looking price tickets is like making bread without yeast, it fails to raise the "dough" (this latter quaint remark, parenthetically, shows that our friend Gwyer, like most quiet fellows, has a sense of humor in his make up).

Keeping forever at it, week in week out, applies to window displays just as it does to newspaper advertising. To paraphrase an old maxim, "Eternal advertising is the price of success in modern merchandising."

If a window display does not draw it should be taken out after two days. If it does draw it should be allowed to remain three days. There is nothing like teasing the public, Mr. Gwyer thinks, and it is infinitely better to come again with a successful window than to keep at it until it grows stale.

If a special sale of an article is to be featured in the window Friday is the best day on which to spring it, for reason that it is usually a dull day in almost every community, therefore the best time to make a special bid for business. The policy of putting on display certain goods to be sold at a special price two or

three days later has proven unwise—now is the accepted time—seen today it may be forgotten tomorrow. Failure to appreciate the value of their window, so prevalent among druggists, Mr. Gwyer classifies as almost a crime.

THE DRUG STORE CRISIS.

CHAS. M. FORD, PH. G.

It is not the purpose in this paper to sound the alarm of some new danger that threatens the members of our craft or to announce any newly arrived condition. Rather, to call attention to what is the common knowledge of all the dispensing pharmacists of the country and see if we are doing individually and collectively our full duty in meeting those conditions, which are thrust upon us by a revolution in medical practice.

This revolution is so fixed and widespread that even the general public have observed it and are a part of it, as much as pharmacists and physicians.

This writer, since his retirement from active business about a year ago, has enjoyed a more advantageous viewpoint than is afforded from a position back of the prescription case.

The aforesaid viewpoint was made even more advantageous when, two months ago, the Colorado State Board of Health created the office of state drug inspector and conferred the same upon this wandering pharmacist.

In the brief period that has elapsed since entering upon the state's pay roll it has not been possible to look in upon all my fellow pharmacists of the city of Denver.

Fifty such official visits have been made to as many different stores and a few facts gathered from each visit are herewith laid before you.

There are, all told, 181 stores in Denver.

The fifty here reported are not all in one section but from different sections of the city, so as not to impair the average.

In the fifty stores, 211 persons are employed, including proprietors actively engaged and help of all kinds. Of these 211 persons, 84 are registered pharmacists. There are 307 new prescriptions dispensed daily.

We have one firm operating several stores in the center of the city, who dispense about 200 prescriptions daily. This firm should obviously be excluded from any calculations to show average conditions.

The 307 prescriptions now dispensed at fifty stores could easily be dispensed at ten stores without any of the remaining forty stores suffering any material loss. In fact the apparent sacrifice might, to each of them be a gain, if an effort were made to secure business from other undeveloped sources.

For instance, assuming that about 250 families are tributary to each store and the wants of these families in such articles strictly appropriate for druggists to handle were carefully considered the drug store might become a much more useful institution in the community than the present so-called prescription pharmacy, which is such only in name and disappointed hopes.

With the prescription features eliminated, there could be made a reduction in cost of help and possibly hours. Suppository moulds, tablet machine, capsule fillers, microscope and chemical apparatus, such as belong to a real pharmacy would no longer be required. The unsightly prescription case, which still clings to so many stores could be relegated to deserved oblivion and its ancient and senseless secrets laid bare.

It never had any legitimate use, except to conceal loafers and faulty store-keeping. Another good riddance would be that large class of merchandise in pint bottles, that never served but two purposes, one to remind us of our friend, the detail man; the other to fill a four-ounce prescription once.

The business day of sixteen or seventeen hours might be shortened. It is true that prescription dispensing is not the only work about a drug store requiring skill, for as we all know the services of the trained and experienced pharmacist are just as essential in supplying the household remedies and giving the necessary information and advice regarding them.

Therefore if an attempt should be made to classify stores into those doing prescription work and those refusing it, the same regulation and restriction would be required in both classes.

It is hopeless to look for a return to prescription writing by physicians. It is in fact becoming a lost art and we must adapt ourselves to the inevitable.

Modern surgery, osteopathy, electropathy, Christian Science and hygienic treatment have all laid a heavy hand upon the pharmacist's calling.

In the meantime let us keep our eye on the two great foes to ethics in pharmacy, as well as in medicine, the detail man and the dispensing doctor.

Let us join hands anew with the American Medical Association for an open Pharmacopoeia and National Formulary in every pharmacy, in every physician's office and in every college of medicine.

THE DEATH BENEFIT IDEA.

Wilhelm Bodemann of Chicago is very much interested in the idea of establishing a coöperative death benefit plan among pharmacists. He has sent us two or three letters on the subject which have appeared in the *Bulletin* from time to time, and other druggists have responded with approval. We gave space last month, for instance, to a communication from John C. Endress. It strikes us that the idea is worth developing. The plan would be simply for each member to be assessed 50 cents or \$1.00, say, whenever there was a death, and the amount so collected would be sent to the widow to help defray the funeral and other expenses. Oftentimes the best of men die without leaving very much in the way of money, and four or five hundred dollars, or even less than that, becomes almost a godsend. If a thousand men would go into the scheme, and the assessment were modestly set at 50 cents, this would make \$500—a very tidy sum in cases of emergency. The logical organization to push this thing is the N. A. R. D., and we commend the proposition to Major-General Charles Mylert Carr, soldier, propagandist, and penman-in-chief of the organization.—*Bulletin of Pharmacy*.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY.

Abstracts from the Report on the Progress
of Pharmacy for the Year 1911, by

C. Lewis Diehl, Reporter.

(Second Installment.)

Acetic Ether: Rational Method of Preparation.—According to A. Kurtenaker and H. Habermann acetic ether is most rationally prepared from molecular proportions of alcohol and acetic acid, using nickel sulphate as a dehydrating medium. While an excess of alcohol causes the esterification of a larger percentage of the acetic acid, the resulting acetic ether is contaminated with considerable quantities of alcohol which can be removed only by a tedious process. They recommend that the reacting mixture be heated in a water bath, under a reflux condenser, and as soon as the thermometer indicates a boiling point of about 73°, to reverse the condenser and collect the distillate so long as the boiling point does not rise materially above 73°. When this occurs, the mixture is again heated under the reflux condenser until the contents of the still again boil at 73°, when the distillate is collected as before—this alternate systematic treatment being repeated until no further distillate passes over at the temperature of 73°. This method secures the largest yield of pure acetic ether.—*Jour. f. prakt. Chem.*, 1911, No. 12.

Camphor: Tests of Identity and Purity.—W. Lenz has made some comprehensive studies regarding the tests of identity and purity of camphor. He finds that the determination of the melting point affords an excellent criterion and aid to establish the purity of a sample. The optical rotation, however, gives no reliable data for the valuation of crude camphor, the impurities of which show a stronger rotatory power than pure camphor; it is of value, however, to determine whether or not the sample consists of natural d-camphor. While the determination of the residue of evaporation is a val-

able aid to establish the purity of camphor, this is too tedious and consequently impracticable. The conversion into oxim has been improved by the author so that a yield of about 93% instead of from 75 to 85% is obtainable; but a valuation of the sample is impracticable because of the disparity between the theoretical and actual yield of oxim is still too great. The vanillin-hydrochloric reaction is of service only for the identification of natural camphor; moreover, the red color of this reaction is exceeded by that produced by pure hydrochloric acid (38% HCl) on natural camphor. But the amount of substance insoluble in 10 parts of this strong hydrochloric acid affords an excellent criterion for estimating the impurities in commercial camphor, which may serve well as a basis for a reliable process. In point of fact, however, it may be said that no single reaction will serve to give a clear view of the composition of crude camphor, which becomes possible only by a combination of the various tests and reactions proposed.—*Arch. d. Pharm.*, 249 (1911), No. 4, 286-293.

Synthetic Camphor: Continued Improvement in German Manufacture.—Gehe & Co. report that while in other countries some of the manufacturers of Synthetic Camphor have relinquished their efforts to compete with the natural product, owing to the continued high price of oil of turpentine and the reduction in the price of Japanese Camphor, the restless energy of German manufacturers in improving and devising new methods has enabled them to compete successfully and to maintain the position of synthetic camphor on the market. The outlook for a continuation of the manufacture of synthetic camphor is the more encouraging, since it has been clearly proven that the artificial product possesses identically the same therapeutic properties and practically the same chemical character as the natural.—*Pharm. Ztg.*, LVI (1911), No. 32, 321.

Barium, Strontium and Calcium: Quantitative Separation and Estimation.—v. d. Horn

and v. d. Bos describe a new method for the quantitative separation of barium, strontium and calcium, which is adaptable both for their gravimetric and volumetric estimation in their admixtures. The dilute solution is acidulated with acetic acid and the barium precipitated with excess of ammonium chromate, the barium chromate being collected on a filter, washed, dried and weighed. From the filtrate the strontium chromate is precipitated quantitatively by 50% alcohol, and in the filtrate from this the calcium is quantitatively precipitated as oxalate. The details of the volumetric method, based upon the reactions described, must be consulted in the original abstract.—Pharm. Weekbl., 1911, 5, through Pharm. Zentralh., LII (1911), No. 30, 298.

Mercury: Colorimetric Estimation in Very Dilute Solutions.—H. R. Procter and R. A. Seymour-Jones recommends a colorimetric method for the estimation of mercury in very dilute solution which is based upon the observations that the metal is not precipitable as sulphide with H_2S in the presence of formic-, citric- or other organic acid, the HgS being retained in colloidal solution. The intensity of the color produced is in direct proportion to the amount of metal present, which may then be estimated by comparison with a standardized solution of the same by one of the known colorimetric methods.—Journ. Soc. Chem. Industr., through Chem. Ztg., 1911, No. 90.

Nitrates: Detection in Portable Waters.—Caron and Raquet recommend a solution of salicylic acid in concentrated sulphuric acid as a valuable reagent for nitrates in drinking waters. Ten Cc. of the water are evaporated to dryness, the residue is triturated with 1 Cc. of the reagent, and 10 Cc. of water, followed by 10 Cc. ammonia are added. In the presence of nitrates a yellow color is developed, which may be made available for their colorimetric estimation. It is essential that the reagent is freshly prepared, but this can be avoided by adding 1 Cc. of a 1% solution of sodium salicylate to the evaporating water under examination, and then adding simply concentrated sulphuric acid, followed as before mentioned with water and ammonia.—Rép. de Pharm., 1911, No. 6.

Nitrites: New Reagent for Their Detection in Potable Waters.—Dané proposes as reagent for nitrous acid in potable waters a

solution of 0.02 of synthetic indol in 150.0 of 95% alcohol. If 2 to 5 Cc. of this new reagent are added to waters containing nitrites, and the water is then acidulated with a 50% sulphuric acid, a rose-red color is developed in the course of one minute. The reaction is quite sensitive; it may be made available for colorimetric determinations of nitrites in waters, and serves also for the detection of nitrous acid in other reagents.—Bull. de la Soc. Chim., IX (1911), 345.

Kolatein (Kolatein): A New Constituent of Kola-Nuts.—A. Goris describes a new, phenol-like constituent of fresh kola-nuts, which he obtained during the isolation of kolatin with which it occurs associated and is separated by its insolubility in ether, in which kolatin is soluble. By several recrystallizations the new body, which the author has named *Kolatein*, was obtained in a pure condition, leaving no residue on combustion. It does not liberate carbonic acid from $KHCO_3$, is precipitated from its solutions by lead acetate, gives a green color with ferric chloride and its solution becomes violet-red on addition of ammonia. *Kolatein* is soluble in hot water, more sparingly in cold water; also soluble in alcohol, acetone and wood-spirit but insoluble in ether, chloroform, petroleum ether and xylol. From its aqueous solution it crystallizes with water of crystallization, which, however, it loses rapidly on drying, and in this respect resembles phloroglucin with which it has various reactions in common. It differs, however, from phloroglucin by its bitter taste, its coloration (green) with ferric chloride, and its melting point, which is 257° – 258° . In its chemical relations it apparently belongs to the group of catechins.—Bull. des. Science. de Pharmacol., 1911, No. 3.

Opium: Culture-Experiments in Austria.—Dr. W. Miltacher and R. Wasicky give some interesting information concerning culture experiments undertaken in Austria during recent years with the object of cheapening the method of collecting the opium from the poppy. It has been demonstrated by numerous experiments recorded during the past century that the poppy (*Papaver somniferum*, L.) cultivated throughout Central Europe, will yield by the Oriental method of collection (by incisions in the unripe capsules) opium differing very little or not at all from Smyrna opium of normal quality in its alkaloidal con-

tent. The cultivation of the poppy for the production of opium has, however, been prohibitive on account of the high cost of the labor required for collecting the poppy juice by incisions on the capsules of the growing plant. The authors therefore conceived that a method of expression might lead to the economical production of the opium of satisfactory quality; but in this they were disappointed. Opium obtained in this way was extremely deficient in alkaloid, containing only about 5% of the quantity of morphine found in opium prepared from the same crop by the Oriental method; nor was it possible to obtain more than 20% of the morphine content of the latter, by repeated extraction of the marc remaining after the expression of the juice. Nevertheless, the authors believe that by improving the method of expression, using a press of greater power, possibly in connection with an inflow of warm water, it may be practicable to prepare an opium with a profitable content of alkaloid, though admitting that at present the proposed method has no practical value.—*Unt. d. Allg. Oesterr. Apoth.-Ver.*, 1911, No. 5.

Rhamnus Cathartica: Constituents of the Bark.—Introducing the subject of their recent researches on the constituents of the bark of *Rhamnus Cathartica*, A. Tschirch and H. Bromberger mention that more than 60 years ago Max Boriswanger had determined the presence in this bark of the following constituents: An oil (colored green by chlorophyll) rhamnoxanthin, amorphous resin; tannin, crystallizable bitter principle, and sugar; but none of these bodies were definitely characterized. Since then (1898), Tschirch announced the presence of "Oxymethylantraquinone" in this bark (compare also *Rhamnus Catharticus*," *Proceedings*, 1901, 741). By their recent researches Tschirch and Bromberger have now isolated and definitely describe the following additional constituents: "*Rhamnosterin*," a nearly colorless body belonging to the phytosterins; "*Rhamnofluorin*," an ash-gray body, crystallizing in flat plates, soluble in ammonia and alcohol with green-yellow fluorescence; "*Emodin*" (=Frangula-Emodin); "*Chrysophanol*" (=pure Chrysophanic acid); "*S-Glucose*"; and "*Tannic Acid*." *Arch. d. Pharm.*, 249 (1911), No. 3, 218-223.

Gentian Root: Changes During the Vegetation Period.—M. Bridel makes some inter-

esting observations concerning the changes in chemical constituents of Gentian Root during the vegetation period of one year. He finds that considerable variations occur during the period, particularly in the direction of the carbohydrate hydrolysable by inversion. In the case of gentiopicroin these variations are not appreciable, the roots containing constantly at least 2% of this glucoside. The quantity of carbohydrates hydrolysable by inversion, however, which at the beginning of the vegetation period amounts to 1.2% was found at the end to be 7.8%. Gentianose is always present in the amount of 3%, except during the months of May and June, at which period the root contains gentiobiose, and that the content of gentianose is greatest during the months of August and September. The greatest variations, in fact, is shown in the saccharose content, which accumulates towards the end of the vegetation period and disappears completely at the beginning of the next, as does also a large portion of the gentianose—*Journ. de Pharm. et Chim.*, 1911, No. 6.

Tincture of Gentian: Improved Preparation.—In the course of his studies on the constituents of Gentian Root and the changes occurring during the process of drying and preservation (see *Gentian Roots*, above), Bridel has determined that the active constituents of the fresh roots may be preserved without appreciable loss if a rational process of drying is observed. In a further communication the author now points out that the ferment existing in fresh Gentian Root, being practically unchanged in the properly dried drug, it is liable to exert unfavorable activity on the gentiopicroin if the gentian is prepared in the ordinary way, and that this ferment should therefore be destroyed by preparing the tincture with *hot* alcohol. A properly prepared tincture of gentian should contain about 1% of gentiopicroin.—*Pharm. Ztg.*, LVI (1911), No. 54, 544.

Cherry-Laurel Water: Preservation, Clarification, etc.—A. Astom points out that cherry-laurel water can be effectually preserved only by keeping it in completely filled, well-closed bottles, protected from light. The loss in hydrocyanic acid in open bottles, particularly when they are not filled, is very considerable, and this loss is greatly increased by the influence of light. The author advises the use of small brown-glass bottles for

storing this water and also for dispensing it. Moreover it must be tested from time to time regarding its strength, and should be renewed more frequently than is at present required by the French Pharmacopœia, which directs the renewal of distilled waters annually. Regarding the clarification of cherry-laurel water, the author cautions against the use of animal charcoal, which is capable of absorbing and holding considerable quantities of HCN. This absorption varies with different kinds of charcoal and the quantity, but time of exposure or the temperature appears to be of comparatively small influence.—*Jour. de. Pharm. et Chim.*, Vol. IV (1911), No. 1.

Extracts of Belladonna and Hyoscyamus: New Method of Alkaloidal Assay.—A new and simple method for the estimation of alkaloid in the extracts of belladonna and hyoscyamus has been adopted in the laboratory of the Association "Pharmakon" of St. Petersburg, which may be briefly outlined as follows: The extract (using twice as much extr. hyoscyam as belladon.) is liquified with water and, after addition of ammonia, vigorously shaken with a measured quantity of ether. After subsidence, an aliquot part of the ethereal extraction is evaporated, the residue is dissolved in alcohol, the solution diluted with water, and a specified quantity of 1/10 N-hydrochloric acid added, the whole being adjusted with water to a specified volume. An aliquot quantity of liquid is then filtered off, a measured quantity of ether is added, and the unconsumed hydrochloric acid is then ascertained by titration with 1/10 N-potassium hydroxide, using iodeosin as indicator, to a faint rose color. The reaction is quite sharp, and the calculation is made in the well-known manner.—*Farmaz. Journ. russ.*, 1911, 138.

Syrup of Raspberry: Detection of Foreign Coloring Matter.—Schwikkard points out that the G. P. method of testing for foreign coloring matters in syrup of raspberry, which depends on their solubility in amyl alcohol, is liable to be misleading because the latter acquires a strong rose color with all natural raspberry juices. He therefore recommends the destruction of the natural color by treatment with sodium hydroxide solution before applying the amylalcohol test.—*Pharm. Ztg.*, LVI (1911), No. 57, 578.

Ferrated Cod Liver Oil: Preparation with

Ferric Benzoate.—Const. Kollo points out that the solubility of ferric benzoate in cod liver oil depends on the method of its preparation and the care with which it has been preserved, and therefore considers it best that pharmacists prepare this salt themselves to assure its proper quality, for which purpose he recommends the following formula: 6 Gm. of pulverized benzoic acid are suspended in 120 Gm. of distilled water and accurately neutralized with 10% ammonia, of which about 8.5 Gm. are required. The filtered solution is transferred into a wide and deep porcelain basin, and a solution of 9.5 Gm. of solution of ferric chloride of sp. gr. 1.280-1.282, previously diluted with 250 Gm. of distilled water and neutralized with ammonia as accurately as possible, is added with assiduous stirring. The voluminous precipitate is allowed to subside, washed until the washings no longer give a chlorine reaction, drained, and rapidly dried.—*Pharm. Post*, 1911, No. 51.

Ung. Hydrarg. Oxyd. Flav: Preparation.—M. J. Romeyer states that the following method yields a yellow oxide of mercury ointment satisfactorily conforming to all requirements: Using a porcelain mortar and porcelain or glass pestle, all these carefully cleansed with hydrochloric acid and distilled water and well dried, 5.0 Hydrarg. Oxydat. flav. and 15.0 Lanolin Anhydric. are intimately triturated with the aid of the heat of a water-bath. The reddening of the mercuric oxide under the influence of the heating disappears completely on cooling. This mixture is finally incorporated with 80.0 Vaseline. alb., 10.0 or more of which may be replaced in winter by Ol. Vaseline. pur. The product possesses permanent stability and is free from all side-effects.—*L. Union Pharm.*, 1911, No. 50.

Propolis: Production, Character, Composition, Etc.—M. Kistenmacher contributes an interesting and comprehensive study of propolis (bee-bread) which, almost completely forgotten as a remedy, has in recent years again attracted attention. He describes its significance in the hive, the method of its production by the bees from the oil or balsam on the surface of pollen grains, its influence on the construction of the honey-comb, its properties, composition, etc. In the fresh condition, propolis is a very soft mass, possessing strong adhesive power, a strongly aromatic odor, a bitter taste, and varies in

color from greenish-yellow to liver-brown. The older bee-bread, containing waxy and refuse matters, etc., usually has a darker color and is less adhesive. The propolis or bee-bread of commerce contains comparatively only a small percentage of solid matter, its composition depending upon the work of the bees themselves as well as the method of the collection by the bee-keeper. It is mainly composed of an oil or balsam—the so-called propolis balsam—which in turn is composed of cinnamic alcohol, cinnamic acid, tannins and resins.—Ber. d. D. Pharm. Ges., 1911, No. 1.

Yoghurt: Preparation.—Dr. H. Kühl contributes a lengthy paper describing the properties and preparation of the Bulgarian milk-food known as "Yoghurt" (also "jaurt") which is receiving considerable attention in recent years and was described in the "Report" of last year (see Proc. 1910, 390). The author does not add much to the description there given, but gives some practical details respecting its preparation which may be of supplementary interest. He says that of the three Bacilli that are concerned in the production of yoghurt from milk, the one of most importance is *Bacillus Bulgaricus*, since

it is principally concerned in the peculiar acidification that characterizes this preparation, the other two (*Bacterium lactic acidii* Güntheri and a lactic acid *Streptococcus*) serving mainly the purpose of modifying the taste and preparing the milk for acidification. To prepare the thin-liquid yoghurt, which is preferred to the thick yoghurt used in the Balkan states, good, fresh milk is subjected to brief boiling and then allowed to cool to 45°C., whereupon it is at once inoculated with some old yoghurt or, if this is not available, with a yoghurt culture, which must be well mixed with the milk. It is then allowed to stand at a temperature of about 40°C., observing that the temperature does not fall below 35°C., at which temperature the growth of the *Bacillus Bulgaricus* ceases.

When the milk shows signs of thickening—usually after three to five hours—the vessel is transferred to a cool place, and the yoghurt is then ready for use, retaining its good quality and taste several days. To assure its proper quality an experiment is made with a fresh portion of milk, inoculated with some of the yoghurt just prepared.—Pharm. Ztg. LVI (1911), No. 45, 454; from Südd. Apoth. Ztg., 1911, No. 43.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

(Continued from January issue—page 73.)

CANELLA ALBA.

CANELLA.

The dried bark of *Canella Winterana* (L) Gaertn. (Fam. *Canellaceae*).

In quills usually from 1 to 3 dm. long and 1 to 4 cm. thick, occasionally 2 or 3 times as large or in irregular fragments of such quills, the bark from 1.5 to 4 or 5 mm. thick, the

outer periderm mostly removed; outer surface light brownish-yellow or pale orange-brown, more or less scaly, with few very shallow fissures, often more or less reticulate with slight ridges; inner surface paler, smoothish, but showing coarse, longitudinal striae; fracture short and sharp, pale yellow, with an irregular slightly darker band just

inside of the middle. Odor slight unless the bark is heated, then aromatic; taste aromatic and peppery-biting, somewhat bitter.

Upon incineration Canella should yield not over 8 per cent of ash.

CASCARILLA.

CASCARILLA.

Sweetwood Bark. Sweet Bark.

The dried bark of *Croton Eluteria* (Linné) Bennett (Fam. *Euphorbiaceae*).

In quills or curved pieces from 0.5 to 2.5 mm. thick, having a gray somewhat fissured, easily detached corky layer, more or less coated with a white lichen, the uncoated surface dull-brown and the inner surface smooth; fracture short, the fractured surface having a resinous and radially striated appearance.

Odor characteristic, being strong and musk-like when the bark is burned. Taste warm, aromatic and very bitter.

Upon incineration Cascarilla should yield not over 10 per cent of ash.

CAULOPHYLLUM.

CAULOPHYLLUM.

Blue Cohosh, Blueberry Root, Papoose Root, Squaw Root, Blue Ginseng.

The dried rhizome and roots of *Caulophyllum thalictroides* (L.) Michaux (Fam. *Berberidaceae*).

From 7 to 15 cm. long and 5 to 15 mm. thick; of horizontal growth much branched, the rhizome slightly compressed from above, bearing large cup-shaped stem scars on the upper surface, and underneath a tangled or matted mass of long, curly, thin, tough roots which frequently conceal the rhizome, both rhizome and roots of a grayish or yellowish-gray color; fracture tough and woody; odorless but sternutatory, the taste bitter, sweet and acrid.

Upon incineration Caulophyllum should yield not over 6 per cent ash.

SEMEN APII.

CELERY SEED.

The ripe fruit of *Apium graveolens* Linné (Fam. *Umbelliferae*).

Consisting of two mericarps, which may be united or separate. Mericarp ovoid, slightly curved, 1 to 2 mm. long, rather more than half as broad and about half as thick, of a rather deep brown color; the inner surface flat, the outer convex, smooth except for 5

very slender light colored ribs, two of which are marginal. Oil tubes in the pericarp about 12, one to three in each interval between the ribs. Odor characteristic, agreeable, taste aromatic, warm and somewhat pungent.

Upon incineration Celery Seed should yield not more than 8 per cent of ash.

CENTAURIUM.

CENTAURY.

The dried flowering herb of *Erythraea Centaurium* (L.) Pers. (Fam. *Gentianaceae*).

Glabrous, 1.5 to 5 dm. high, at length much branched from the base, little if at all branched from above, the stems slender, sharply angled or narrowly winged, sparsely leafy; leaves opposite, entire, mostly 3 nerved, sessile, those at the base obovate and obtuse, 2 to 7 cm. long, the base narrow and petiole-like, the upper gradually changing to oval, then ovate, or even lance-linear, acute or acutish; flowers in a (mostly dense) terminal and at length compound cyme, rose-colored; calyx about 5 to 7 mm. long, deeply 5 parted, the short tube sharply angled, the linear-attenuate lobes with a sharp midrib; corolla-tube nearly twice the length of the calyx, slender, the limb 10 to 15 mm. broad, its lobes broadly oblong or oval; stamens 5, exserted, bright-yellow, their anthers twisted when old; pistil 2 carpelled. Odor faint but characteristic and taste persistently bitter.

Upon incineration Centaury should yield not over 5 per cent of ash.

CETRARIA.

CETRARIA.

Iceland Moss.

The dried thallus of *Cetraria Islandica* (Linné) Ascharius (Fam. *Parmeliaceae*).

Foliateous 5 to 10 cm. long, often of equal or even greater breadth, irregularly branched into narrow fringed and channelled lobes; brownish above, underneath whitish and marked with depressed silvery spots; brittle and odorless, but when moistened with water becoming soft and cartilaginous and developing a slight odor; taste bitter and mucilaginous.

Before use Cetraria should be freed from pine needles, other lichens or other foreign matters, which are often found mixed with it.

A 5 per cent decoction should gelatinize on cooling.

Upon incineration Cetraria should yield not more than 1.5 per cent of ash.

PIX LITHANTHRACIS.

Coal Tar. Pix Carbonis.

The tar obtained as a by-product in the destructive distillation of coal in the manufacture of illuminating gas.

A nearly black, thick liquid or semi-solid, heavier than water and possessing a characteristic naphthalene-like odor and a sharp burning taste.

It is only slightly soluble in water, to which it imparts its characteristic odor and taste and a faint alkaline reaction. It is but partially dissolved by alcohol, acetone, methyl alcohol or petroleum benzin; almost entirely by ether; entirely by benzol, carbon disulphide or chloroform.

COCCULUS INDICUS.

Fructus Cocculi. Fish Berry. Indian Berry.

The dried fruit of *Anacardium Coccinellum* (Linné), W. & Arn. (*A. paniculatum*, Colebrook; *Menispermum Coccinellum*, Linné. Fam. *Menispermaceae*).

Reniform about 10 mm. long and 6 mm. broad and thick blackish-brown and wrinkled; hilum and micropyle close together, separated by a shallow sinus and connected by an obscure ridge running around the convex side. Seed urn shaped, its longitudinal and transverse sections crescent shaped; testa slightly bitter; the seed is whitish-yellow and intensely bitter.

Upon incineration Coccus should yield not over 5 per cent of ash.

CONDURANGO.

Cortex Condurango. Condurango Bark.

Condurango is the dried bark of the stem and branches of a climbing shrub indigenous to the Northern Andean region of South America, probably *Marsdenia Condurango* Reichenbach fil. (Fam. *Asclepiadaceae*).

Condurango occurs in quilled or curved pieces about 5 cm. to 15 cm. long and 0.5 to 2 cm. wide, the bark 2 to 7 mm. thick; cork thin, grayish red brown, warty or soft-scaly; inner surface pale, yellow-gray and coarsely striated; breaking with a short and granular fracture, somewhat fibrous in the inner layer and of a pale brownish color.

A cross section examined under the microscope, exhibits a periderm of layers of thin cork cells and a primary bundle of colorless shining long bast fibres at the inner border of the primary bark; in the secondary bark, yellow stone cells but no bast fibres; in the

bast narrow medullary rays, bast fibres and stone cells; numerous lactiferous vessels with dark content in all but the periderm and the inner parenchyma rich in starch; calcium oxalate in single crystals in the outer bark and elsewhere in numerous rosette aggregates.

The bark is bitter, somewhat acrid and slightly aromatic and has a somewhat pungent odor resembling pepper. Upon incineration it yields not more than 12 per cent of ash, containing traces of manganese. An infusion of condurango (1 to 5) made cold is clear, but on heating becomes turbid and on cooling clears again.

FLORES CONVALLARIAE.

CONVALLARIA FLOWERS.

Lily of the Valley Flowers.

The dried inflorescence of *Convallaria majalis* Linné (Fam. *Liliaceae*).

From 15 to 25 cm. long, the peduncle usually more than half of the length. Peduncle dull-green or below purplish-green, and more or less angled; flowers white, but usually drying brownish, usually 10 to 20 in number, borne in a more or less secund raceme on recurved pedicels which are usually from a half longer than their flowers to twice their length, pedicel subtended by a whitish, ovate, acute bract about half its length; flowers 6 to 8 mm. long and rather broader, bell-shaped, six-parted, the segments ovate, obtuse, and slightly recurved; stamens 6, included, adnate to the base of the corolla; style columnar, 3 grooved. Odor agreeable; taste sweetish, then somewhat acrid.

PERSIO.

CUDBEAR.

Red Indigo.

A purplish red powder prepared from species of *Rocella*, *Lecanora* and other lichens.

The aqueous or alcoholic solution of cudbear is of a deep red color which is rendered lighter in tint by the addition of acids and changed to purplish red on the addition of alkalis.

2 Gm of cudbear agitated occasionally with 200 Cc. of water and then filtered, yields a deep red liquid, which may be used for the following tests:

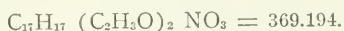
If 5 Cc. of the aqueous solution of cudbear (1 in 100) be acidulated with 5 drops of glacial acetic acid and boiled for one minute, the addition of 5 drops of stannous chloride

T. S., and further boiling for one minute, should yield a liquid possessing only a faint pink color. (absence of *Brazilwood* or *log-wood*, both of which produce a deep red color with this test).

If 100 Cc. of the aqueous solution of eudbear (1 in 100) be shaken with 25 grammes of kaolin in an Erlenmeyer flask during one hour and then filtered, the filtrate should be almost entirely decolorized, when compared with some of the original solution, which is to be retained for comparison (absence of a number of *coal tar colors* which are unaltered by this treatment).

When carefully ignited to constant weight eudbear should leave not more than 35 per cent of residue, consisting mainly of sodium chloride.

DIACETYL MORPHINE.



A synthetic alkaloid obtained by the acetylation of Morphine.

White odorless crystalline powder of alkaline reaction and a bitter taste.

Soluble in 1600 parts of water, 26 parts of alcohol, 2 parts of chloroform, 70 parts of ether and 6 parts of benzine, also soluble in 3 parts of boiling alcohol.

Diacetyl Morphine melts at 170°-171° C.

On incineration it should not leave more than 0.01 per cent of ash.

0.1 Gm. dissolved in 10 Cc. sulphuric acid should not impart any coloration to the liquid.

If 0.1 Gm. be dissolved in 1 Cc. alcohol and to this solution 1 Cc. sulphuric acid be added and warmed, the odor of acetic ether will be perceptible in a few minutes.

If 0.1 Gm. be dissolved in 2 Cc. Iodic Acid (1-10) no iodine should be liberated (absence of morphine).

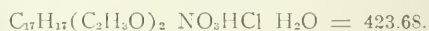
A trace of the alkaloid dissolved in a small porcelain dish with a few drops of nitric acid imparts a yellow color to the solution, the color turning greenish blue when slightly warmed, or after standing 3 to 5 minutes without warming. (Absence of morphine and test for identification).

On adding one drop of ferric chloride T. S. to an aqueous solution of 10 Cc. potassium ferriocyanide (1 in 1000) and then 1 Cc. alcoholic solution of Diacetyl Morphine (1 in 100) no greenish or blue color should be produced at once (absence of morphine).

If 0.2 Gm. of the alkaloid is dissolved in 5 Cc. of water, with the aid of a few drops

of diluted hydrochloric acid, and this solution is slowly poured into 5 Cc. of 5 per cent potassium hydroxide solution, shaking the test tube occasionally, a white precipitate is formed, which is quickly re-dissolved, yielding a perfectly clear and colorless solution (absence of other alkaloids), and if this solution be heated no ammonia reaction should be obtained with moistened red litmus paper (absence of ammonium salts).

DIACETYL MORPHINE HYDROCHLORIDE.



The hydrochloride of the synthetic alkaloid obtained by the acetylation of Morphine.

White crystalline powder of a bitter taste. Soluble in 2 parts of water, 9 parts of alcohol and 4 parts of chloroform. Almost insoluble in ether and in petroleum ether.

The salt, when heated to about 200° C., turns brown and melts at about 233° C.

Its aqueous solution is neutral and yields a white precipitate with silver nitrate T. S. insoluble in Nitric Acid.

If 5 Cc. of the aqueous solution (1 in 20) is slowly added to 3 Cc. 5 per cent potassium hydroxide solution a white precipitate appears, which rapidly dissolves and yields a perfectly clear and colorless solution (absence of other alkaloids), and if this solution be heated no ammonia reaction should be obtained with moistened red litmus paper (absence of ammonium salts).

On adding one drop of ferric chloride T. S. to an aqueous solution of 10 Cc. potassium ferriocyanide (1 in 1000) and then 1 Cc. aqueous solution Diacetyl Morphine Hydrochloride (1 in 100) no greenish or blue color should be produced at once (absence of morphine).

It should respond to the other reactions for purity when carried out as described under diacetyl morphine.

CORNUS FLORIDA.

DOG-WOOD BARK.

Bark of Flowering Dogwood or Cornel.

The dried bark of the root of *Cornus florida* L. (Fam. *Cornaceae*).

Occurring in irregular, chip-like pieces, or portions of quills, usually less than 5 cm. long and 1 to 4 mm. thick; externally of a dingy brown color, lightly fissured and thinly scaly, or reddish where the corky layer has been removed; inner surface varying from

pinkish-brown to red-purple, usually harsh to the touch from numerous short striae; fracture short, its surface whitish with yellow striae, except the inner layer, which is light purple. Odor slight and non-characteristic; taste bitter and astringent.

Upon incineration *Cornus* should yield not more than 10 per cent of ash.

DROSERA.

DROSERA.

Sundew, Youthwort, Lustwort.

The air dried flowering plant *Drosera rotundifolia* Linné. (Fam. *Droseraceae*), frequently mixed with the closely allied species *Drosera intermedia* Hayne and *Drosera longifolia* Linné or at times wholly substituted by these.

A delicate plant of a reddish color throughout, with few fibrous blackish rootlets; leaves all in a basal rosette, the blade orbicular about 15 mm. in diameter abruptly contracted into a long, slender pubescent petiole, the upper surface covered with glandular hairs; scape filiform, smooth, 10 to 20 Cm. long, bearing a few parted small white fugacious flowers in a curved one-sided raceme.

Odorless; taste faintly bitter and acidulous.

Drosera yields with 60 per cent alcohol about 25 per cent of brownish red extract.

Upon incineration *Drosera* should yield not over 30 per cent of ash.

Drosera intermedia is identified by its spatulate leaves with blades 2 or 3 times as long as wide and glabrous petioles. *Drosera longifolia* by spatulate oblong to spatulate obovate leaves with blades 6 to 8 times as long as wide, and smooth petioles and scape declinate at base.

ECHINACEA.

The dried rhizome and roots of *Brauneria pallida* (Nuttall) Britton (Syn. *Echinacea angustifolia* De Candolle), (Fam. *Compositae*).

Nearly entire, cylindrical, very slightly tapering, ten to twenty cm. long, four to eight mm. in diameter; externally greyish-brown, light brown or purplish-brown, slightly annulate in the upper portion, with occasional V-shaped stem scars, somewhat what longitudinally wrinkled, or furrowed and sometimes slightly spirally twisted; fracture short, fibrous; internally, bark less than one mm. in thickness, wood thick and composed of alternate light yellowish and black wedges; the rhizome with a circular pith;

odor faint, aromatic; taste, sweetish, followed by an acrid and tingling sensation, reminding one of aconite, but lacking the persistency and numbing qualities of the latter.

Microscopical structure. The drug is characterized by (1) the presence of intercellular (schizogenous) oil and resin cavities or reservoirs in both the wood and bark; (2) numerous stone cells which are distinguished by the presence of a blackish, carbon-like, resinous substance in the intercellular spaces between them and some of the adjoining parenchyma; (3) the parenchyma contains masses or aggregates of inulin; (4) the walls of the tracheae or vessels are marked with simply slit-like pores or annular and reticulate thickenings. Bast fibers occur in the stem. In some specimens true libriform or wood fibers are found.

Upon incineration *Echinacea* should yield about 6 per cent of ash.

EUPHORBIA PILULIFERA.

Pill Bearing Spurge. Asthma Weed.

The entire annual herb *Euphorbia pilulifera* Linné. (Fam. *Euphorbiaceae*), collected while flowering and fruiting and dried.

Roots usually present, small, branched, reddish; stems slender, cylindrical, obliquely erect, dichotomously branched from near the base, branches recurved at apices; branches and stem only sparsely leafed at base, pale greenish-brown, rough or hairy; pubescence consisting of short, nearly straight unicellular hairs becoming almost hispid at the flowering tops; leaves opposite, obliquely oblong, acute, serrulate, rusty pale green, pubescent especially on the prominent veins on the lower surface, becoming brittle on drying and usually much broken in the drug; flowers small, numerous in short peduncled axillary clusters; fruits small three celled capsules; seed small, triangular ovoid, pale brown.

Odorless, taste faintly bitter and herb-like.

Upon incineration *Euphorbia Pilulifera* should yield about 12 per cent of ash

FOENUM GRAECUM.

Foenugreek Seed.

The dried ripe seeds of *Trigonella Foenum-graecum* Linné (Fam. *Leguminosae*).

Hard, smooth and somewhat shiny, brownish-yellow or yellowish-brown seeds about 3 mm. long and 2 mm. broad, obliquely rhomboidal, the flat surfaces diagonally grooved; internally yellowish, free from starch. Odor

peculiar, somewhat disagreeable. Taste disagreeable, fatty, mucilaginous and slightly bitter.

A transverse section shows microscopically the papillose epidermis covering a layer of palisade stone cells beneath which is a layer of columnar cells with broad bases and large intercellular spaces followed by a layer of parenchyma and a single layer of aleurone cells. The embryo, rich in aleurone, is enclosed in an endosperm of large and loose mucilage cells.

The powder is light reddish-yellow and under the microscope the mucilage cells of the endosperm are very distinctive. On moistening the powder with alcohol the large aleurone grains, about 15 microns in diameter, become very prominent. With solution of chloral hydrate the numerous oil globules and the characteristic elements of the cuticle and other layers are brought out.

Upon incineration Foenugreek yields about 5 per cent of ash.

ACIDUM FORMICUM.

FORMIC ACID.

A liquid composed of about 24 per cent of absolute formic acid ($H. COOH = 46.02$) by weight and about 76 per cent of water.

Clear, colorless, having a strongly acid reaction and a characteristic pungent odor.

Specific gravity: about 1.058 at $25^{\circ} C.$ (1.060 at $15^{\circ} C.$).

Miscible with water or alcohol in all proportions.

When heated the acid is volatilized and should leave not more than 0.01 per cent of residue.

On warming the acid with mercuric chloride T. S. a white precipitate of mercurous chloride is formed.

Diluted with 5 times its water, formic acid should give no precipitate or turbidity on the addition of silver nitrate T. S. (chloride) or barium chloride T. S. (sulphate); or, after supersaturating with ammonia water, on the addition of calcium chloride T. S. (oxalic acid); or hydrogen sulphide, either after addition of a few drops of hydrochloric acid or after addition of an excess of ammonia water, (heavy metals).

If the acid be supersaturated with potassium or sodium hydroxide solution, the liquid should have no pungent or empyreumatic odor (acrolein, allyl formate, etc.).

If 1 Cc. of the acid be heated on a water-

bath with 1.5 Gm. of yellow mercuric oxide and 5 Cc. of water for 10 minutes, the filtrate should not have an acid reaction (acetic acid).

If 1 drop of decinormal iodine solution be added to 10 Cc. of the acid, the iodine color should not be destroyed (sulphurous acid).

ESTIMATION.

Introduce about 5 Cc. of Formic Acid into a stoppered weighing bottle and weigh accurately. Dilute the acid with about 50 Cc. of water and titrate with normal potassium hydroxide V. S., using phenolphthalein as indicator. Multiply the number of Cc. of normal potassium hydroxide V. S. consumed, by 4.601, and divide this product by the weight of the acid taken; the quotient represents the percentage of absolute formic acid in the latter.

ACIDUM FORMICUM FORTIOR.

CONCENTRATED FORMIC ACID.

A liquid composed of about 83 per cent of absolute formic acid ($H. COOH = 46.016$) and about 16.5 per cent of water.

Specific gravity about 1.192 at $25^{\circ} C.$ (1.200 at $15^{\circ} C.$).

When diluted with three times its volume of water, it should conform to the tests for purity given under Formic Acid.

ESTIMATION.

Introduce about 3 Cc. of Concentrated Formic Acid into a stoppered weighing bottle and weigh accurately. Dilute the acid with about 50 Cc. of water and titrate with normal potassium hydroxide V. S., using phenolphthalein as indicator. Multiply the number of Cc. of normal potassium hydroxide V. S. consumed by 4.601, and divide this product by the weight of the acid taken; the quotient represents the percentage of absolute formic acid in the latter.

FUCUS.

FUCUS.

Kelp, Bladder Wrack.

The dried thallus of *Fucus vesiculosus* Linné (Fam. *Fucaceae*).

Sometimes a meter in length, but usually in shorter pieces, from 1 to 4 cm. in width, dichotomously branched, black, usually with a slight whitish incrustation, flat, smooth, entire-margined, having a stout midrib throughout, along which are irregularly disposed pairs of air-vesicles which vary in size from that of a pea to that of a hazelnut; receptacles

terminal, compressed, mostly ovate or elliptical and about 1 cm. in length, but varying from spherical and 5 mm in diameter to linear-lanceolate and 5 cm. long, forked, solitary, or in pairs; odor strongly briny; taste saline and nauseous.

Upon incineration *Fucus* yields about 19 per cent of ash.

GALANGAL.

Lesser or Small Galangal.

The dried rhizome of *Alpinia officinarum*, Hance (Fam. *Zingiberaceae*).

Irregularly branched, from 2 to 10 Cm. in length and 1 to 2 Cm. thick, the branches thinner toward the base; reddish or rusty brown externally, and of a lighter orange-brown internally, marked with the fine annuli of the leaf bases, which are from 3 to 10 mm. apart and of lighter color than the general surface; cut ends of the branches circular, with recurved margin; fracture very fibrous; odor aromatic and agreeable; taste hot and spicy and much resembling ginger.

Upon incineration Galangal yields about 9 per cent of ash.

GUAIACI LIGNUM.

Guaiac Wood.

The heart wood of *Guaiacum Officinale* (Linné) or of *Guaiacum Sanctum* (Linné) (Fam. *Zygophyllaceae*).

Usually in the form of shavings, chips or raspings which should be of a greenish-brown color, heavier than water, entirely free from adhering bark and containing few chips or shavings of a whitish color (absence of sap wood). Almost odorless except when heated. Taste bitter and acrid when chewed for some time.

If powdered Guaiac wood be placed in a salt solution consisting of one part of salt to three of water, the blackish brown part only will sink; this should far exceed the other. If 10 c. c. of alcohol be shaken with 0.5 Gm. of guaiac wood for a few seconds and filtered the filtrate gives with one drop of a ten per cent. solution of ferric chloride a deep blue color.

Guaiac wood should yield not less than 15 per cent of soluble matter to alcohol and on incineration should leave about 3 per cent of ash.

HELONIAS.

False Unicorn Root.

The dried rhizome and roots of *Chamaelirium carolinianum*, Willd. (Syn. *Helonias dioica* Pursh). (Fam. *Liliaceae*).

Rhizome upright, or oblique, nearly cylindrical, from 0.5 to 3 cm. long, about 1 cm. in diameter; externally greyish brown, annulate from scars of bud-scales, upper portion with leaf bases enclosing a small bud, oblique rhizomes with a few stems scars 0.5 mm. in diameter, lower portion with numerous whitish or pale yellowish nearly straight or slightly curved wiry roots, from 5 to 8 cm. long; fracture hard and horny; internally greyish yellow, cortex 3 to 4 mm. thick, central cylinder with three or four circles of small, nearly circular fibrovascular bundles; odor distinct; taste bitter, slightly astringent.

The parenchyma cells contain numerous spherical or ellipsoidal starch grains, varying from 2 to 10 microns in diameter. Numerous raphides are found varying from 25 to 35 microns in diameter. The fibrovascular bundles vary from 20 to 30 microns in diameter, the tracheae being at the periphery and the walls marked either with annular or reticulate thickenings or simple pores. In the root, the cortex is always attached and there are usually 6 mestome strands.

Upon incineration Helonias yields about 5 per cent of ash.

IGNATIA.

IGNATIA.

St. Ignatius Bean. Ignatia Amara.

The dried seed of *Strychnos Ignatii* Bergius. (Fam. *Loganiaceae*).

About 20 to 30 mm. long, by 15 mm. broad and thick; angularly ovate with obtuse angles; externally grayish or reddish black and nearly smooth; heavy, hard and horn like, with a granular fracture and translucent in small fragments; having a small, irregular cavity in the center; nearly inodorous and intensely bitter.

Upon incineration Ignatia yields about 4 per cent of ash.

When assayed by the following process, Ignatia should contain not less than 2.5 per cent of mixed alkaloids (strychnine and brucine).

ASSAY OF IGNATIA.

Ignatia in No. 60 powder.....10 Gm.
 Chloroform
 Ether
 Alcohol
 Normal Sulphuric Acid V. S.
 Ammonia Water
 Distilled Water
 Each a sufficient quantity.

Into a 250 Cc. Erlenmeyer flask introduce the Ignatia, add 100 Cc. Ether, 40 Cc. Chloroform and 10 Cc. Alcohol and stopper the flask tightly and agitate thoroughly; then add 5 Cc. Ammonia Water and macerate with the flask closely stoppered and with frequent agitation for 12 hours. Then transfer the contents of the flask to a small percolator which has been provided with a pledget of purified cotton packed firmly in the neck and the outlet inserted in a separator containing 15 Cc. of normal sulphuric acid V. S.. When the liquid has passed through the cotton, pack the Ignatia firmly in the percolator with the aid of a glass rod and wash the flask with four portions (5c. each) of a mixture of chloroform 1 volume, ether 3 volumes and pass this through the drug in the percolator. Next stopper the separator and shake well for 2 minutes; allow the liquid to separate and draw off the acid liquid into another separator. Repeat the shaking out with successive portions of 5 Cc. and 3 Cc. of normal sulphuric acid V. S. and collect the acid washings in another separator. If a drop of the last acid solution yields a precipitate with mercuric potassium iodide T. S., repeat the shaking with another portion of 3 Cc. normal sulphuric acid V. S. To the combined acid solution in the second separator, add a small piece of red litmus paper, 25 Cc. of chloroform and then sufficient ammonia water to render the liquid alkaline and shake the separator thoroughly. When the liquids have separated, draw off the chloroform into a tared beaker or flask and repeat the shaking out of the alkaline liquid with two successive portions of 15 Cc. each of chloroform; mix the chloroform solutions and evaporate the solvent and heat on a waterbath to a constant weight and subtract from this the weight of the tared vessel and multiply the remainder by 10, which will give the percentage of total alkaloids in the Ignatia. (To be continued.)

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

Committee:

M. I. WILBERT.....Washington, D. C.
 FRANKLIN M. APPLE.....Philadelphia, Pa.
 THEO. D. WETTERSTROEM.....Cincinnati, O.
 JAMES M. GOOD.....St. Louis, Mo.
 OTTO RAUBENHEIMER, Brooklyn, N. Y., *Chm.*

The Committee on the A. Ph. A. Recipe Book, after due consideration, presented the following report to the Council and at the Boston meeting:

"Advisability of Publication:

There is great need of an authentic collection of reliable formulas of non-official galenic preparations, etc., in the United States and our A. Ph. A. is the proper body to publish such a book, just as our sister associations in Great Britain, Germany, etc., have already done.

2. Scope and Character:

The Recipe Book should be progressive and helpful and should include formulas for things which are used and useful and should be divided into several parts,

- a. Formulas deleted from U. S. P. & N. F.
- b. Formulas of foreign pharmacopœias and formularies, which are often prescribed or for which the retail pharmacist could make propaganda efforts.
- c. Various other formulas, often named after their originators, scattered at present in pharmaceutical and medical journals, books and proceedings and also hospital formularies.
- d. Toilet articles, cosmetics, and perfumery.
- e. Technical Receipts as battery fluids, photographic solutions, cleansing fluids, insecticides, etc.
- f. Agricultural preparations, veterinary remedies, poultry foods and medicines, etc.
- g. Soda water, beverages, syrups, etc.

3 Plans and Details of Publication:

It is not necessary to publish the Recipe Book hurriedly. We recommend that the department on pharmaceutical formulas in the new JOURNAL OF THE A. PH. A. should first print these formulas before their publication in book form. They could furthermore be

printed in duplicate, namely, in the reading pages and also as a filler in the advertising pages, from which they could be cut out by the pharmacists interested, and collected in the form of a card index.

The members of the A. Ph. A. should be asked to submit formulas used in their vicinity, which after publication and criticism could be voted on by retail pharmacists, actively engaged in preparing and dispensing medicines.

The final publication in book form should include only such formulas as are desirable to the majority of the retail pharmacists. As undoubtedly some of these formulas will in time be admitted into the N. F. or U. S. P., such a book will at the same time serve as a stepping-stone thereto."

In order to make this department a success and a help to pharmacy, the hearty co-operation of the members of the A. Ph. A. is solicited. All comments and criticisms, as well as new formulas (if possible in the metric system) should be sent directly to the chairman,

OTTO RAUBENHEIMER,
1341 Fulton St., Brooklyn, N. Y.



ABBREVIATIONS

used in Department of *Pharmaceutical Formulas*, and in Department of *Synonyms*.

- Am. Dis.—American Dispensatory.
Anvers—Formulaire de la Société de Pharmacie d'Anvers.
Aust.—Pharmacopœa Austriaca.
Belg.—Pharmacopœa Belgica.
B. P.—British Pharmacopœia.
B. P. C.—British Pharmaceutical Codex.
Buch.—Buchheister's Vorschriftenbuch.
Can.—Canadian Formulary.
Codex—Codex Française.
D. A-B—Deutsches Arzneibuch.
D. M.—Dieterich's Manual.
Dorv.—Dorvault L'Officiene.
D. Ap. V.—Deutscher Apotheker Verein.
Dresd. Ap. V.—Dresdener Apotheker Verein.
Hess. Ap. V.—Hessischer Apotheker Verein.
Lux. Ap. V.—Luxemburg Apotheker Verein.
Munch. Ap. V.—Münchener Apotheker Verein.
E. B.—Ergänzungsbuch.
F. B.—Formulæ Magistrales Berolinenses.
F. P. F.—Formulaire des Pharmaciens Français.
Hag.—Hager's Pharmazeutische Praxis.

- Hag. E.—Hager's Ergänzungsband.
Hell—Hell's Manual.
Helv.—Pharmacopœa Helvetica.
Ital.—Farmacopea Italiana.
Mar.—Martindale Extra Pharmacopœia.
Med.—Medicamenta (Milano).
N. Dis.—National Dispensatory.
N. F.—National Formulary.
Orosi—Farmacologia Italiana.
P. I.—Præscriptiones Internationales.
Ph. F.—Pharmaceutical Formulas (London).
P. J. F.—Pharmaceutical Journal Formulary.
Proc.—Proceedings A. Ph. A.
U. S. Dis.—U. S. Dispensatory.
U. S. P.—U. S. Pharmacopœia.



No. 1.

AQUA COSMETICA KUMMERFELDL

Kummerfeld's Cosmetic Water or Lotion.

Kummerfeld'sches Waschwasser.

Camphor	10 Gm.
Acacia in fine powder.....	20 Gm.
Glycerin	50 Gm.
Precipitated Sulphur	100 Gm.
Rose Water.....	820 Gm.

To make.....1000 Gm.

Triturate the finely powdered Camphor with the Acacia and the Precipitated Sulphur, then add the Glycerin and gradually the Rose Water, triturating constantly so as to obtain a homogeneous lotion.

Shake well before dispensing.

—Dresdener Vorschriften.

The *Erzänzungsbuch* of the *Deutscher Apotheker Verein* (corresponding to our *National Formulary*) omits the Acacia and increases the Precipitated Sulphur to 120 Gm. Having given both formulas a fair trial I find that the Dresden formula gives the best results both pharmaceutically as well as therapeutically. O. R.



No. 2.

ACETUM HYDRARGYRI BICHLORIDI.

Bichloride of Mercury Vinegar

Vinegar of Corrosive Sublimate.

Sublimat Essig.

Mercuric Bichloride	1 Gm.
Diluted Acetic Acid.....	300 Gm.

Dissolve.

This solution is recommended by the well-known German dermatologist, Prof. Jessner, as an application against vermin on the head

of children. He claims this to be more effective than the old-time *Acetum Sabadillae*. In our opinion this preparation, being a solution of mercuric chloride 1 : 300, should of course be used with great care and should by no means be used in this strength when the scalp has been abraded by scratching, which is very often the case.

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No. 3.

LANOLINUM.

Lanolin. Hydrous Wool-fat.

D. A-B. V.

Wool-fat (anhydrous), 15 parts	65 Gm.
Water	5 parts 22 Gm.
Liquid Petrolatum.....	3 parts 13 Gm.

To make..... 100 Gm.

To be mixed at a gentle heat.

It is a yellowish white, almost odorless, unctuous mass. This formula has been thoroughly tried by a number of pharmacists and was found to give an excellent preparation which is not near as sticky as the commercial kinds.

<>

No. 4.

UNGUENTUM CEREUM.

Wax Ointment—Wachsalbe.

D. A-B. V.

Peanut Oil.....	7 parts
Yellow Wax.....	3 parts
"Wax ointment is yellow."	

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No. 5.

LANOLIMENTUM BOROLYGERINI.

Boroglycerinlanolin. Byrolin.

E. B.

Boric Acid.....	2. Gm.
Glycerin	18. Gm.
Water	10. Gm.
Paraffin Ointment, D. A-B. V.	20. Gm.
Lanolin, D. A-B. V.....	50. Gm.
Oil of Neroli.....	ii Drops.
Oil of Bergamot.....	
Oil of Lemon.....	of each iii Drops.

Dissolve the Boric Acid in the Glycerin by heat, then dilute with the water. Melt the Paraffin ointment and the Lanolin (The German Pharmacopœia formulas for both these preparations will be found in this department) and to this mixture gradually add the Boric Acid and Glycerin solution. Stir until cool and then add the oils.

This is a white, soft ointment, possessing

soothing and healing properties. Its consistency is soft enough to be filled in collapsible tubes.

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No. 6.

UNGUENTUM PARAFFINI.

*Unguentum Durum.**Paraffin or Hard Ointment.—Paraffin Salbe.*

D. A.—B. V.

Ceresin	4 parts
Liquid Petrolatum.....	5 parts
Wool-fat, anhydrous.....	1 part

Paraffin ointment is yellowish white and hard. The wool-fat serves to bind the ceresin and the liquid petrolatum into a uniform hard ointment.

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No. 7.

UNGUENTUM MOLLE.

Soft Ointment—Weiche Salbe.

D. A-B. V.

Yellow Petrolatum.

Lanolin, equal parts.

Soft ointment is yellowish.

This is an elegant soft ointment base, which is not sticky and which is readily absorbed. It is especially useful for ichthyol ointment, and for other medicaments which are intended to be absorbed. Another great advantage of *Soft ointment* is that liquids can be incorporated very readily.

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No. 8.

PASTA BISMUTHI.

Bismuth Paste. Beck's Bismuth Paste.

Bismuth Subnitrate.....	30. Gm.
White Wax.....	5. Gm.
Paraffin	5. Gm.
Yellow Petrolatum.....	60. Gm.

To make.....100. Gm.

The Petrolatum, Wax and Paraffin are melted and then sterilized by boiling. Allow the mixture to cool, triturate well with the Bismuth Subnitrate and fill into jars.

This Bismuth paste was originated by Dr. Emil G. Beck of Chicago, and is to be injected into fistulous tracts, tuberculosis sinuses and abscess cavities. For this reason the preparation must be sterilized and before using the jar must again be placed into a waterbath, which is gradually brought to boiling. According to Dr. Beck, care must be used to avoid the admixture of water during the preparation of the paste. As the bismuth sub-

nitrate was frequently reduced and became black when it was added to the boiling petrolatum mixture, therefore this old method of preparation has given way to the new method given above.

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No. 9.

PULVIS INSPERSORIUS ANTI-SEPTICUS.

Antiseptic Dusting Powder.

Lycopodium.
Zinc Oxide,
Starch,
Talc, of each..... 24 Gm.
Boric Acid..... 4 Gm.

To make.....100 Gm.
Triturate to a very fine powder.

Luxemburg Ap. V.

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No. 10.

PULVIS LAXANS.

Laxative Powder.

Calomel 0.2 Gm.
Jalap, in fine powder..... 1.0 Gm.
Mix them intimately.

Formulae Berolinenses.

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No. 11.

PULVIS INFANTIUM HUFELANDI.

Hufeland's Infant Powder.

Hufeland's Kinderpulver.

E. B.

Magnesium Carbonate..... 10. Gm.
Valerian 10. Gm.
Orris 15. Gm.
Anise 4. Gm.
Saffron 1. Gm.

Reduce the drugs to fine powder and gradually add the Magnesium Carbonate with constant trituration, so as to obtain a uniform powder. Hufeland's Infant Powder is a dry, grayish powder, with a strong valerian odor.

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No. 12.

PULVIS DENTIFRICIUS ALKALINUS.

Alkaline Tooth Powder.

Poudre Dentifrice Alkaline.

CODEX.

Calcium Carbonate, precipitated 50 Gm.
Magnesium Carbonate..... 25 Gm.
Oil of Peppermint..... 25 Drops.
Mix well and keep in a stoppered bottle.

No. 13.

ARGENTI IODIDUM NASCENDI.

Nascent Silver Iodide.

Silver Nitrate..... 2. 2 Gm.
Potassium Iodide..... 2. 2 Gm.
Distilled Water..... 50 Cc.
Mucilage of Irish Moss, N. F.,
a sufficient quantity.

To make.....100 Cc.

For a heavy, coarse precipitate the Potassium Iodide and the Silver Nitrate are dissolved separately, each in 5 Cc. of Distilled Water. The two solutions are subsequently mixed and the mixture, after being thoroughly shaken, is diluted with the requisite amount of Distilled Water and Mucilage to make 100 Cc.

Wilbert, M. I.

Am. J. Pharm. 1906, v. 78, p. 67.

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No. 14.

BALNEUM ACIDI BORICI.

Boric Acid Bath.

Boric Acid..... 12.5 Gm.
Water, a sufficient quantity

To make..... 1000.0 Cc.
Dissolve.

Brit. Pharm. Codex, 1911, p. 1111.

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No. 16.

BALNEUM ALKALINUM.

Alkaline Bath.

Sodium Carbonate, in crystals 1.0 Gm.
Water, a sufficient quantity

To make 1000.0 CC.
Dissolve.

Brit. Pharm. Codex, 1911, p. 1111.

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BALNEUM EFFERVESCENS.

Effervescent Bath.

Sodium Bicarbonate..... 3.0 Gm.
Sodium Acid Sulphate.... 1.5 Gm.
Water, a sufficient quantity

to make..... 1000.0 CC.

Dissolve the Sodium Bicarbonate in the Water, and add the Sodium Acid Sulphate, in lumps or cakes, to the solution.

Brit. Pharm. Codex, 1911, p. 1111

No. 17.

CREMOR AD RASENDUM.

Surgical Shaving Cream.

Tallow	25.00 Gm.
White Wax	4.68 Gm.
Hard Soap	2.85 Gm.
Tragacanth, in fine powder...	0.64 Gm.
Starch, in fine powder.....	1.56 Gm.
Oil of Lavender Flowers....	0.26 Cc.
Oil of Lemon.....	0.13 Cc.
Oil of Wintergreen.....	0.13 Cc.
Distilled Water, warm, a sufficient quantity.	

To make 100.00 Gm.

Melt the Tallow and Wax and add them to the Hard Soap previously dissolved in 62.5 Cc. of the Water, stir well. When the emulsion formed has cooled to about 50°, add the mixed Tragacanth and Starch, the Oils, and sufficient Water to make up the desired weight.

Brit. Pharm. Codex, 1911, p. 1135.

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No. 18.

ELIXIR PEPTOLACTICUM.

Peptolactic Elixir.

Stronger Glycerin of Pepsin....	12.5 Cc.
Diluted Hydrochloric Acid.....	1.5 Cc.
Diluted Lactic Acid.....	1.5 Cc.
Solution of Cochineal.....	0.5 Cc.
Simple Elixir, a sufficient quantity.	

To make 100.0 Cc.
Mix.

Brit. Pharm. Codex, 1911, p. 1150.

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No. 19.

FERRI CARBONAS NASCENDI.

Nascent Ferrous Carbonate.

Ferrous Sulphate.....	3.2 Cc.
Distilled Water.....	1.5 Cc.
Potassium Carbonate.....	1.6 Gm.
Glycerin, a sufficient quantity	

To make 100.0 Gc.

Dissolve the Ferrous Sulphate in the distilled Water by means of heat, add a portion of Glycerin, then dissolve the Potassium Car-

bonate in the remaining portion of Glycerin, allow to cool and mix.

The resulting solution is clear, transparent and dark green in color. It decomposes readily when exposed to air and moisture, and should be directed to be liberally diluted when administered.

Wilbert, M. I.

Am. J. Pharm. 1907, v. 79, pp. 525-526.

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No. 20.

GLYCERINUM PEPSINI FORTIUS.

*Stronger Glycerin of Pepsin.**Syn.: Glycerol of Pepsin.*

Pepsin	15.0 Gm.
Diluted Hydrochloric Acid....	5.0 Cc.
Glycerin	50.0 Cc.
Simple Elixir.....	5.0 Cc.
Disilled Water, a sufficient quantity.	

To make..... 100.0 Cc.

Add the Pepsin to 30 Cc. of the Distilled Water, previously mixed with the Hydrochloric Acid and Glycerin, shake well, and set aside until clear; then decant or filter and add the Simple Elixir, with sufficient Distilled Water, if necessary, to make up to the required volume. This preparation contains about 8 grains of pepsin in 1 fluidrachm, or 0.6 Gm. in 4 Cc.

Brit. Pharm. Codex, 1911, pp. 1198-99.

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No. 21.

LIQUOR SAPONIS AETHEREUS.

Ethereal Soap Solution.

Oleic Acid.....	35.0 Cc.
Potassium Hydroxide Solution, saturated, a sufficient quantity.	
Alcohol	15.0 Cc.
Oil of Lavender Flowers.....	0.2 Cc.
Methylated Ether (sp. 0.720)	100.0 Cc.

Mix the Oleic Acid and Alcohol and neutralize with the saturated solution of Potassium Hydroxide in water (1 in 1), of which nearly 7.5 Cc. will be required, using phenolphthalein as indicator. Allow the neutralized product to cool, and add the Oil and Ether.

Brit. Pharm. Codex, 1911, p. 1261.

No. 22.

SAPO LIQUIDUS.

Liquid Soap.

Sodium Hydroxide.....	40 Gm.
Potassium Hydroxide.....	40 Gm.
Cotton Seed Oil.....	500 Cc.
Alcohol	250 Cc.
Distilled Water, a sufficient quantity.	

To make 2500 Cc.

Wilbert, M. I.

Proc. Am. Pharm. Ass. 1907, v. 55, p. 120.

Synonyms

This department is intended to be of great practical value to the pharmacist. In his address as chairman of the Section of Practical Pharmacy and Dispensing at the Richmond meeting, in May, 1910 (Proc. Vol. 58, p. 1091), the writer recommended the study of synonyms, pharmaceutical, chemical and botanical, to the individual practical and dispensing pharmacist. Instead of dividing the synonyms into these classes, it has been decided, after due consideration, to classify them as Latin, English, German and French. In view of our increasing membership in Cuba, it would also seem advisable to include synonyms in Spanish. If desired, synonyms in other languages, as Italian, Swedish, Danish, Bohemian, etc., might also be given.

In order to make this department a success, the co-operation of all members is requested and due credit will be given.

A list of the abbreviations used will be found in the Department of *Pharmaceutical Formulas*.

Respectfully submitted,

OTTO RAUBENHEIMER.

LATIN.

Latin-English.

Abrus Precatorius (seeds)—Jequirity, Jumble Beads, Prayer Beads, Indian Licorice, Wild Licorice.

Aerugo—Verdigris.

Aethiops—Black Mercury Sulphide.

Antidotum Arsenici Helv—Iron Hydroxide with Magnesia (U. S. P.).

Aqua Benedicta Rulandi—Wine of Antimony.

Aqua Carmelitorium—Spir. Melissa Co. (D. A-B.).

Aqua Cosmetica Kummerfeldi—Kummerfeld's Cosmetic Lotion.

Aqua Naphae—Orange Flower Water.

Aqua Neroli—Orange Flower Water.

Benzosulphinidum (U. S. P.)—Benzosulphinide, Saccharin.

Anhydro-ortho-sulphamide Benzoic Acid, Benzoyl Sulphonic Imide.

Gluside, Glucosimide.

Glycosine, Glycophenol.

Garantose, Glusimide.

Saccharol, Saccharinol.

Saccharinose.

Sykose, Saxin.

Neo-Sacharin, Zuckerin.

Cerussa—Lead Carbonate, White Lead.

Cerussa Nigra—Black Lead, Plumbago, Graphite.

Cinnabaris—Cinnabar, Native Red Mercury Sulphide.

Colla Piscium—Fish Glue, Isinglass, Ichthyocolloids.

Cuprum Aluminatum—Copper Alum.

Elixir Pro—Tinct. Aloes Comp. (D. A-B.).

Elixir Proprietatis—Tinct. Aloes Comp.

Elixir Purgans—Tinct. Jalap Co. (N. F.).

Euchininum—Euquinine, Quinine Carbonic Ether, Quinine Ethylcarbonate.

Euquinina—Euquinine, Quinine Carbonic Ether, Quinine Ethylcarbonate.

Guttae Amarae Baumé—Tinct. Ignatiae, (Cod).

Guttae Anglicae—Acetum Opii.

Guttae Britannicae—Acetum Opii.

Guttae Nigrae—Acetum Opii.

Guttae Batemani—Tinct. Pectoralis (N. F.).

Guttae Pectorales—Tinct. Pectoralis (N. F.).

Guttae Botkini—Dr. Botkin's Stomach Drops.

Guttae Hoffmanni—Hoffmann's Drops.

Guttae Hoffmanni—Spir. of Ether.

Guttae Inosemzoffi—Prof. Inosemzoff's Cholera Drops.

Lapides Cancrorum—Crabstones.

Lapilli Cancrorum—Crab's-eyes.

Lapis Caneri—Eye Stones.

Lapis Divinus—Cuprum Aluminatum.

Lapis Pumicis—Pumice Stone.

Lapis Vulcani—Pumice Stone.

Oleoresina Abies Balsamea—Balsam of Fir, Canada Turpentine.

Potassa Caustica (B. P.)—Potassium Hydroxide.

Radix Pastinacae Aquaticae—European Water Parsnip Root.
Radix Sii Palustris—European Water Parsnip Root.
Rhus Aromatica (bark of root)—Sweet Sumach, Fragrant Sumach, Trefoil Sumach, Squaw-berry.
Rhus Glabra (fruit)—Sumach: Smooth,—Mountain,—Upland,—Scarlet,—Sleek,—White,—Pennsylvania,—Sumach, Vinegar Tree.
Sapo Kalinus (D. A-B.)—Potassa Soap, Soft Soap.
Sium Latifolium (root)—European Water Parsnip.
Soda Tartarata (B. P.)—Rochelle Salt.
Soda Vitriolata—Sodium Sulphate.
Spiritus Oryzae (exOryza)—Arrack (a liquor obtained by the fermentation and distillation of rice and sugar in the East Indies, etc.).
Spiritus Phosphori (N. F.)—Spirit of Phosphorus.
Spiritus Pyroxylicus—Methyl Alcohol, Wood Alcohol.
Spiritus Rosmarini—Essence of Rosemary.
Spiritus Russicus (E. B.)—Russian Spirit.
Spiritus Sacchari (e Saccharo)—Rum.
Spiritus Salis Ammoniaci Anisatus—Anisated Spirit Ammonia.
Spiritus Salis Ammoniaci Causticus, or
Spiritus Salis Ammoniaci—Ammonia Water (10%).
Spiritus Salis Ammoniaci Aromaticus—Aromatic Spirit of Ammonia.
Terra Infusoria—Infusorial Earth, Diatomaceous Earth, Siliceous Earth, Fossil Flour, Kieselguhr, Kieselgur.
Terra Silicea—Infusorial Earth, Diatomaceous Earth, Siliceous Earth, Fossil Flour, Kieselguhr, Kieselgur.
Testa Ovarum—Egg Shells.
Tinct. Camphorae Comp. (B. P.)—Paregoric.
Tinct. Opii—Tinct. Opium.
Tinct. Opii Acetica—Vinegar of Opium.
Tinct. Opii Anisata—Paregoric.
Tinct. Opii Benzoica D. A-B.—Paregoric.
Tinct. Opii Camphorata—Camphorated Tinct. of Opium, Paregoric.
Tinct. Opii Composita—Diarrhoea Mixture Squibbs.
Tinct. Opii Crocata (P. I.)—Crocated Tinct. of Opium.
Tinct. Opii Denarcotina—Denarcotinized Tinct. of Opium.

Tinct. Opii Deodorata—Deodorized Tinct. of Opium.
Tinct. Opii Nigra—Acetum Opii.
Tinct. Opii Sedativa—Acetum Opii.
Tinct. Opii Rosseau (Cod.)—Fermented Tinct. Opium.
Tinct. Opii Simplex (D. A. B.)—Tinct. of Opium.
Tinct. Papaveris (N. F.)—Tinct. of Poppy.
Tinct. Pectoralis (N. F.)—Bateman's Drops.
Tinct. Persionis (N. F.)—Tinct. Cudbear.
Tinct. Persionis Comp. (N. F.)—Comp. Tinct. Cudbear.
Tinct. Phosphori (N. F.)—Spirit Phosphorus.
Tinct. Phosphori Aetherea—Aether Phosphoratus.
Tinct. Pimpinellae (N. F.)—Tinct. Pimpinella.
Tinct. Pini Composita (E. B.)—Wood Tincture.
Tinct. Picis Carbonis—Liquor Carbonis Detergens, Liquor Picis Carbonis (B. P.).
Tinct. Piperis Hispanici—Tinct. Capsici.
Tinct. Pomorum Ferrata—Tinct. Ferri Pomata (N. F.).
Trimethylaminum (E. B.) 10%—Propylamine.
Vinum Spumans—Sparkling Wine, Champagne.
Vinum Stibiatum (P. I.)—Wine of Antimony.

ENGLISH.

English-Latin.

Ammonia Salt—Ammonii Chloridum.
 Ammonia Stone—Ammonii Carbonus.
 Ammoniated Tincture of Quinine—Tinct. Quininae Ammoniata (B. P.).
 Ammonium Carbonate—Ammonii Carbonas.
 Ammonium Sesquicarbonate—Ammonii Carbonas.
 Ammonium Subcarbonate—Ammonii Carbonas.
 Analgesine—Antipyrina.
 Anethol—Anetholum (Stearopten of Oil of Anise).
 Antichlor—Sodii Thiosulphas.
 Benne Oil—Oleum Sesami.
 Benzoic Aldehyde—Benzaldehydum.
 Dimethylketone—Acetinum.
 Eye bright—Euphrasia Officinalis.
 Eye Wort—Euphrasia Officinalis.
 Eye Stone—Lapides Cancrorum.
 Formamine—Hexamethylenamima (U. S. P.).
 Formin—Hexamethylenamina (U. S. P.).
 Francincense—Olibanum.

Fuchsine—Rosanilina hydrochloras.
 Goulard's Cerate—Ceratum Plumbi Subacetatis (U. S. P.).
 Goulard's Ointment—Ceratum Plumbi Subacetatis (U. S. P.).
 Goulard's Salve—Ceratum Plumbi Subacetatis.
 Goulard's Extract—Liquor Plumbi Subacetatis.
 Goulard's Lotion—Liquor Plumbi Subacetatis dilutum.
 Goulard's Wash—Liquor Plumbi Subacetatis dilutum.
 Goulard's Water—Liquor Plumbi Subacetatis dilutum.
 Guaiacol—Methyl-pyrocatechol.
 Guaiacol Benzoate—Guaiacolis Benzoas, Benzosol.
 Guaiacol Carbonate—Guaiacolis Carbonas, Duotal.
 Guaiacol Thionate—Kalium Sulfo-guaiacolicum (E. B.), Thiocol.
 Guaiacol Valerate—Guaiacolis Valeras, Geosote.
 Hebra's Itch Ointment—Ung. Sulphuris Co. (N. F.).
 Hebra's Lead Ointment—Ung. Diachylon (U. S. P.).
 Hebra's Ointment—Ung. Diachylon (U. S. P.).
 Hebra's Salve—Ung. Diachylon (U. S. P.).
 Hebra's Salicylated Ointment—Ung. Diachylon Salicyl (B. P. C.).
 Hebra's Soap Spirit—Spiri. Saponis Kalini, Lin. Saponis Molle.
 Ichthalbin—Ichthyol Albuminat.
 Parodyn—Antipyrina.
 Phytalbumin—Abrin (albuminoid of seeds of Abrus Precatorius).
 Quadruplex Pills—Pilulae Quadruplices, Pilulae Ferri et Quininae Comp. (N. F.).
 Quatuor Pills—Pilulae Quadruplices, Pilulae Ferri et Quininae Comp. (N. F.).
 Quevenne's Iron—Ferrum Reductum.
 Rattlesnake Fern—Botrychium Virginian.
 Rattlesnake Bite—Thalictrum polygamum.
 Rattlesnake Herb—Actaea Alba.
 Rattlesnake Root—Nabalus Serpentarius, Trillium Cernuum.
 Rattlesnake Flag—Eryngium aquaticum.
 Rattlesnake Weed—Eryngium aquaticum.
 Rattlesnake's Master—Eryngium aquaticum.
 Rattlesnake's Beans—Aruba Cedron, Semen Cedronis.
 Rattlesnake's Root—Cimicifuga.
 Red Oil—Acid Oleicum crudum.

Red Tartar—Tartarus Crudus, Argol.
 Triplex Pills—Pilulae Tripllices (N. F.).
 Triplex Pills Francis—Pilulae Tripllices (N. F.).
 Verdigris—Impure Copper Subacetate.
 Vermilion—Red Mercury Sulphide.
 Veronal—Acidum Diethylbarbituricum (D. A-B. V.), Diethylmalonyl-Urea.
 White Copperas—Zinci Sulphas.
 White Earth—Kaolinum.

GERMAN.

German-Latin.

A. B. C. Anispulver—Pulv. contra Pediculos.
 A. B. C. Balsam—Ung. Elemi (E. B.).
 A. B. C. Kraut—Herb. Spilthanes Aemellae, Herb. Aemellae (E. B.).
 A. B. C. Salbe—Ung. Althaeae (E. B.), Ung. Flavum (E. B.).
 Abfuehr-beeren—Fruct Rhamni Cathart.
 Abfuehr-brausepulver—Pulv. Effervescens Comp.
 Abfuehr-latwerge—Confect Sennae, Electuar-e Senna (D. A-B.).
 Abfuehr-limonade—Liq. Magnes. Citrat.
 Abfuehr-mus—Confect. Sennae, Electuar-e Sennae (D. A-B.).
 Abfuehr-oel—Ol. Ricini.
 Abfuehr-pillen—Pil. Cathart. Comp.
 Abfuehr-pillen schwarze—Pil. Aloes et Ferri, Pil. Aetice ferrate (D. A-B.).
 Abfuehr-pulver—Pulv. Glycyrrhiz-Comp., Pulv. Laxans (E. B.), Pulv. Jalapae.
 Abfuehr-quetschen—Pulpa Tamarind.
 Abfuehr-rinde—Cortex Frangulae.
 Abfuehr-saft—Syrup Rhei, Syrup Sennae cum Mannae.
 Abfuehr-salz—Magnes. Sulphas.
 Abfuehr-tee—Species Laxantes (N. F.), Species Lignorum (D. A-B.). Cort. Frangulae.
 Abfuehr-wurzel, gelbe—Rad. Rhei.
 Hamburger Plaster—Emplastrum Fuscum (N. F.).
 Hamburger Salbe—Ung. Fuscum (N. F.).
 Hamburger Tropfen—Tinct. Aloes et Myrrhae or Tinct. Aloes Com. (D. A-B.).
 Hirschhorn Salz—Ammonii Carbonas.
 Kummerfeld's Waschwasser—Aqua Cosmetica Kummerfeldi.
 Muttertropfen—
 alte and neue—Tinct. Rhei aquosa (N. F.), Aq. Aromatic Rubr.
 braune—Tinct. Valerianae, Tinct. Castorei.
 gelbe aetherische—Tinct. Valerian. Aether. (D. A-B.).

rote—Tinct. Cinnamon, Tinct. Apoplectic, Rubr. (D. M.), Tinct. Aromatic (N. F.), Tinct. Carminativ. (E. B.), Tinct. Galbani (D. M.).
saure—Mist. Sulphuric Acid (N. F.).
schwarze—Tinct. Aloes Comp.
Wedell's—Tinct. Zedoaria Comp. (D. A-B.).
weisse—Aq. Aromatica (E. B.), Liq. Ammon. Anis. (D. A-B.). Spir. Aetheris, Spir. Melissa Comp. (D. A-B.).
Stearin—Acidum Stearicum.
Stearin Oel—Acidum Oleinicum.
Tolle Salbe—Electuar Theriacale (E. B.).
Tollkirsche—Belladonna.
Tollkirschblaetter—Fol. Belladonnae.
Tollkirschwurzel—Rad. Belladonnae.
Tollkoerbelkraut—Herb. Conii Maculat.
Tollkoerner—Coculus Indicus.
Tollkraut—Fol. Belladonnae, Fol. Stramonii.
Tollkraut wurzel—Rad. Belladonnae.
Tollruebe—Rad. Bryoniae.
Tollstuchapfe—Fol. Stramonii.
Tollwurzel—Rad. Belladonnae, Rad. Hyoscyami.

FRENCH.

French-Latin.

Absinthe commune—Absinthium.
Absinthe grande—Absinthium.
Absinthe pontique—Artemisia Pontica.
Absinthe romaine—Artemisia Pontica.
Acajou a pommes—Anacardium Occidentale.
Acétanilide—Acetanilidum.
Acétate aluminieux—Aluminii Acetas.
Acétate Ammoniacal—Ammonii Acetas.
Acétate Ammoniacal liquide—Liquor Ammonii Acetatis.
Acétate d'alumine—Aluminii Acetas.
Acétate d'alumine liquide—Liquor Aluminii Acetatis.
Acétate d'ammoniaque—Ammonii Acetas.
Acéate d'ammoniaque liquide—Liquor Ammonii Acetatis.
Acéate basique de plomb dissus—Liquor Plumbi Subacetatis.
Acéate d'éthyle—Aether Aceticus.
Acétate de cuivre—Cupri Acetas.
Acétate de cuivre brut—Cupri Acetas.
Acétate de cuivre cristallisé—Cupri Acetas.
Acéate neutre de cuivre—Cupri Acetas.
Acéate neutre de plomb—Plumbi Acetas.
Acéate de plomb—Plumbi Acetas.
Acéate de plomb liquide—Liquor Plumbi Subacetatis.
Acéate de potasse sec—Potassi Acetas.

Acétate de potassium—Potassii Acetas.
Acétate de potassium solution—Liquor Potassii Acetatis.
Acétate de Sodium—Sodii Acetas.
Acétate de Soude—Sodii Acetas.
Acétate de terre pisante—Barii Acetas.
Acétate de terre pondeuse—Barii Acetas.
Acétate de Zinc—Zinci Acetas.
Acété ammoniacal—Ammonii Acetas.
Acété de litharge—Plumbi Acetas.
Acété de plomb—Plumbi Acetas.
Acété saturne—Plumbi Acetas.
Acéte v. Acétate.
Acétoles (Vinaigres)—Aceta.
Acétone—Acetonum.
Acétonedi ethylsulfone—Sulphonalum.
Acétylpara-aminosalol—Salophen.
Ache—Apium Graveolens.
Ache Céleri—Apium Graveolens.
Ache des marais—Apium Graveolens.
Ache d'eau—Sium Latifolium, Radix Sii Palustris, Postinacæ Aquaticæ.
Ache des chiens—Aethusa Cynapium Herba Aethusæ.
Ache des montagnes—Levisticum levisticum, Rad. Levistici.



COMMITTEE ON NATIONAL FORMULARY.

The following are the new formulas for petroxolin preparations adopted for inclusion in the forthcoming edition of the National Formulary. The Committee is desirous of having them thoroughly tried by pharmacists in different sections of the country so as to avoid, as much as possible, unfavorable comment after the final publication of the book. Comments and criticisms based on practical experience will be welcome. All communications should be addressed to the Chairman of the Committee, Prof. C. Lewis Diehl, 932 Cherokee Road, Louisville, Ky., who will submit the comments to the Subcommittee having the matter in charge.

PETROXOLINUM LIQUIDUM.

Liquid Petroxolin. (Liquid Petrox.)	
Liquid Petrolatum.....	50 Gm.
Oleic Acid	28 Gm.
Oil of Lavender Flowers.....	2 Gm.
Stronger Ammonia Water.....	5 Gm.
Alcohol	15 Gm.

Mix the Liquid Petrolatum and Oleic Acid in a flask, add the Alcohol and then the Stronger Ammonia Water, and warm the

mixture on a water bath, with frequent agitation, until it becomes clear. Lastly add the Oil of Lavender Flowers and mix thoroughly.

PETROXOLINUM CHLOROFORMI CAMPHORATUM.
Camphorated Chloroform Petroxolin. (Camphor and Chloroform Petrox.)

Chloroform	25 Gm.
Camphor	25 Gm.
Liquid Petroxolin	50 Gm.

Dissolve the Camphor in the Chloroform and add the Liquid Petroxolin.

PETROXOLINUM CADINI.

Cade Petroxolin. (Cade Petrox.)

Oil of Cade.....	25 Gm.
Liquid Petroxolin	75 Gm.

Mix them.

PETROXOLINUM CREOSOTI.

Creosote Petroxolin. (Creosote Petrox.)

Creosote	20 Gm.
Oleic Acid	5 Gm.
Liquid Petroxolin	75 Gm.

Mix them.

PETROXOLINUM EUCALYPTOLIS.

Eucalyptol Petroxolin. (Eucalyptol Petrox.)

Eucalyptol	20 Gm.
Liquid Petroxolin	80 Gm.

Mix them.

PETROXOLINUM GUAIACOLIS.

Guaiaacol Petroxolin. (Guaiaacol Petrox.)

Guaiaacol	20 Gm.
Oleic Acid	5 Gm.
Liquid Petroxolin	75 Gm.

Mix them.

PETROXOLINUM HYDRARGYRI.

Mercury Petroxolin. (Mercury Petrox.)

Mercury	30 Gm.
Hydrous Wool-Fat	15 Gm.
Solid Petroxolin	53 Gm.

Triturate the Mercury with the Hydrous Wool-Fat until globules of the intimately distributed metal are no longer visible when the mixture is examined under a lens magnifying ten diameters; then thoroughly incorporate the solid petroxolin.

PETROXOLINUM IODI.

Iodine Petroxolin. (Iodine Petrox, 10 per cent.)

Iodine	10 Gm.
Oleic Acid	40 Gm.
Alcohol	20 Gm.
Liquid Petrolatum	23 Gm.
Oil of Lavender Flowers.....	2 Gm.
Stronger Ammonia Water.....	5 Gm.

Reduce the Iodine to a coarse powder by

trituration in a glass mortar, transfer it to a suitable flask, add the Alcohol and Oleic Acid and agitate the contents of the flask until the Iodine is dissolved. Then add the Oil of Lavender Flowers and the Liquid Petrolatum, mix the liquids and finally introduce the Stronger Ammonia Water and shake the mixture until a clear solution results.

PETROXOLINUM IODI DILUTUM.

Diluted Iodine Petroxolinum. (Iodine Petrox, 5 per cent.)

Iodine Petroxolin	50 Gm.
Liquid Petroxolin	50 Gm.

Mix them.

Alternate Formula.

Iodine in coarse powder.....	5 Gm.
Liquid Petroxolin	95 Gm.

Dissolve the Iodine by agitation with the Liquid Petroxolin in a stoppered bottle.

PETROXOLINUM IODOFORMI.

Iodoform Petroxolin. (Iodoform Petrox.)

Iodoform	3 Gm.
Acetone	20 Gm.
Oleic Acid	10 Gm.
Eucalyptol	3 Gm.
Liquid Petroxolin	64 Gm.

Dissolve the Iodoform in the Acetone, add the Eucalyptol, the Oleic Acid and the Liquid Petroxolin and mix the ingredients thoroughly.

PETROXOLINUM MENTHOLIS.

Menthol Petroxolin. (Menthol Petrox.)

Menthol	5 Gm.
Liquid Petroxolin	25 Gm.

Dissolve the Menthol in the Liquid Petroxolin by agitation.

PETROXOLINUM METHYLIS SALICYLATIS.

Methyl Salicylate Petroxolin. (Methyl Salicylate Petrox.)

Methyl Salicylate.....	20 Gm.
Liquid Petroxolin	80 Gm.

Mix them.

PETROXOLINUM NAPHTHOLIS.

Naphthol Petroxolin. (Naphthol Petrox.)

Betanaphthol	10 Gm.
Liquid Petroxolin.....	90 Gm.

Dissolve the Betanaphthol in the Liquid Petroxolin by agitation.

PETROXOLINUM PHENOLIS.

Phenol Petroxolin. (Phenol Petrox.)

Phenol	5 Gm.
Liquid Petroxolin	95 Gm.

Dissolve the Phenol in the Liquid Petroxolin by agitation in a stoppered bottle.

PETROXOLINUM PICIS.

Tar Petroxolin. (Tar Petrox.)

Oil of Tar..... 25 Gm.

Liquid Petroxolin 75 Gm.

Mix them.

PETROXOLINUM SALICYLATUM.

Salicylated Petroxolin. (Salicylated Petrox.)

Salicylic Acid 10 Gm.

Oleic Acid 5 Gm.

Liquid Petroxolin 85 Gm.

Dissolve the Salicylic Acid in the Oleic Acid and Liquid Petroxolin.

PETROXOLINUM PHENOLIS CAMPHORATUM.

Camphorated Phenol Petroxolin. (Camphorated Phenol Petrox. Campho.

Phenic Petrox.)

Phenol 12.5 Gm.

Camphor, in powder..... 37.5 Gm.

Liquid Petroxolin 50.0 Gm.

Mix the Camphor and Phenol and when the mixture has liquefied add the Liquid Petroxolin and mix them thoroughly.

PETROXOLINUM SULPHURIS.

Sulphur Petroxolin. (Sulphur Petrox.)

Sublimed Sulphur 3 Gm.

Linseed Oil 37 Gm.

Oleic Acid 30 Gm.

Liquid Petroxolin, a sufficient quantity to make..... 100 Gm.

Heat the Sublimed Sulphur and Linseed Oil in a flask, on a sandbath, until the sulphur is dissolved, then allow the mixture to cool, add the Oleic Acid, and sufficient Liquid Petroxolin to make the product weigh 100 Gm. Warm the mixture slightly, if necessary, to obtain a clear liquid.

PETROXOLINUM SULPHURIS COMPOSITUM.

Compound Sulphur Petroxolin. (Compound Sulphur Petrox.)

Sulphur Petroxolin 10.0 Gm.

Oil of Cade..... 10.0 Gm.

Thymol 0.3 Gm.

Eucalyptol 3.0 Gm.

Oil of Turpentine..... 30.0 Gm.

Liquid Petroxolin, a sufficient quantity to make..... 100.0 Gm.

Mix the Thymol and Eucalyptol, add the Oils and the Sulphur Petroxolin, and finally a sufficient quantity of Liquid Petroxolin to make the product weigh 100 Gm.

PETROXOLINUM TEREBINTHINAE VENETAE.

Venice Turpentine Petroxolin. (Venice Turpentine Petrox.)

Venice Turpentine 20 Gm.

Liquid Petroxolin 80 Gm.

Mix them.

PETROXOLINUM SPISSUM.

Solid Petroxolin. (Solid Petrox.)

Paraffin 30 Gm.

Liquid Petrolatum 22 Gm.

Oleic Acid 35 Gm.

Oil of Lavender Flowers..... 3 Gm.

Alcohol 5 Gm.

Stronger Ammonia Water.... 5 Gm.

Melt the Paraffin with the Liquid Petrolatum, on a water bath, add the Oleic Acid, and transfer the mixture to a warm mortar; then immediately add the Oil of Lavender Flowers, followed by the previously mixed Alcohol and Stronger Ammonia Water, and stir the mixture continuously until it cools.

INCREASED REQUIREMENTS IN PENNSYLVANIA.

The Bureau of Professional Education of Pennsylvania has determined upon a completed first year high school course, or its equivalent, for licensure to practice pharmacy. In accordance with this standard the State Pharmaceutical Examining Board has adopted a new rule that applicants for license as assistant pharmacist, applying after March 1, 1912, and applicants for license as pharmacist, matriculating after July, 1911, must have a certificate of preliminary educational qualifications issued by said bureau.

The next examination will be the last one to which applicants for assistant's license will be admitted without first obtaining this certificate. It will be conducted in Harrisburg on Saturday, February 17, 1912.

SYNDICATING PESSIMISM.

"If your life has lead you to doubt the existence of honor in man and virtue in woman; if you feel that religion is a pretense, that spirituality is a sham. that life is a failure, and death the entrance to nothingness; if you have absorbed all the poison philosophy of the world's pessimists, and have committed folly of believing it,—don't syndicate it."—*William George Jordan.*

Editorial Notes and Announcements

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 Progress of Pharmacy.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

OFFICERS AND COMMITTEES.

One function of the JOURNAL is to afford a medium for announcements to the members.

The editor will be pleased to afford space for all such notices and announcements.

Copy should be in the hands of the printer not later than the twentieth of the month preceding the date of issue.



RELATION OF THE PHARMACOPŒIA TO THE PRACTICE OF MEDICINE.

Dr. Cohen's admirable address at the Fifty-ninth Convention of the A. Ph. A. has been reproduced in pamphlet form and is now ready for distribution.

It is an address that the average pharmacist and physician will find as entertaining as a novel, and vastly more edifying.

Your physician friends will thank you for the opportunity of reading it.

While they last, the reprints will be sent to any A. Ph. A. member who applies for them, or to any N. A. R. D. member whose application is forwarded through Secretary Potts.

Address, Secretary of the A. Ph. A., Scio, Ohio.



A GENERAL ACKNOWLEDGEMENT.

That the first number of the JOURNAL was not a disappointment to the members of the Association is indicated by the numerous letters of congratulation received by the editor.

In most cases the congratulations are so personal and of such a flattering character that editorial modesty will not permit of their reproduction here. As the number of letters is greater than can well be answered individually within a reasonable time, the editor hereby expresses to each and all his sincere thanks for their compliments and good wishes.



THE SIXTIETH A. PH. A. CON- VENTION.

With characteristic forwardness, the druggists of Denver are already busy in the formulation of plans for the A. Ph. A. convention which opens in that city August 19, and from this time forward each number of the JOURNAL will contain announcements relating either to the business program or to the projected entertainments.

Located within the shadow of famous mountain peaks, Denver is the entrance gate-

way to the celebrated "Rockies," and is the center of the human activities of one of the most picturesque and interesting regions on the continent.

Owing to its advantageous situation Denver is a competitive point for the railroads, and as a consequence round-trip fares will be very reasonable.

Following the convention, opportunities will be afforded for interesting side trips to the Yellowstone National Park, Salt Lake City, Colorado Springs, Pikes Peak, and other points.

An effort will be made to bring the visitors from the East and South together at St. Louis and to have a special A. Ph. A. train to Denver from that point.

Matters of General Interest

EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

WASHINGTON AND NEW YORK.

September, 1912.

Patron—His Excellency, the President of the United States.

RULES ON PAPERS, THEIR PRESENTATION, DISCUSSION AND PUBLICATION.

To All Prospective Authors of Contributions to this Congress:

In order that the objects of the Congress may be attained the following are necessary:

a. That as many as possible of the papers to be presented at the various meetings of the Congress and its various Sections, be printed and distributed to members attending the Congress prior to the opening thereof.

b. That as little time be given to presentation as is consistent with adequate exposition of the salient points of the communication.

c. That as much time and opportunity be given for discussion as may be needed for a complete presentation of all the views of those members in attendance upon such discussion.

d. That the discussion be recorded in sufficiently full manner correctly to reflect the views of those taking part in the discussion.

e. That the Proceedings be published in complete form as soon after the close of the Congress as is at all feasible.

After considerable study, inquiry and exhaustive criticism of the tentative rules submitted to the chemists and the chemical and

similar societies of the world, March 6, 1911, and September 1, 1911, the Executive Committee of this Congress has concluded that hearty and earnest co-operation of all members of the Congress in the carrying out of the following rules will result in the practical realization of all these things; without such individual co-operation, the officers of the Congress can do very little toward such realization.

Duplicate copies of papers and their abstracts are *thoroughly essential* to quick and accurate printing; authors should have all their contributions in final form (see Rule 21).

1. Papers or other like contributions should be *original and not elsewhere read or published*; however, prior publication of Governmental researches, which publication is made in accordance with the law of such country, shall be exempt from the above restriction as to publication.

2. All papers or like contributions should be as *concise* as possible and must contain the name and post-office address of the respective authors; further, what number, if any, of reprints is desired. (See Rules 8 and 10.)

3. All papers should be *in duplicate* and legibly written, preferably typewritten; formulæ should be carefully inserted by hand as simply as possible.

4. Each sheet should be as nearly 8x12 inches as convenient and should be written on one side only, and *not* on both sides.

5. Each paper should be accompanied by an abstract thereof *in duplicate*; formulæ should be carefully inserted by hand, as simply as possible.

6. All references to other work should state carefully the sources of the citation, giving the exact reference to the original publication.

7. Illustrations, curves and the like should be on separate smooth white sheets and drawn and lettered with Indian ink clearly enough to bear a linear reduction to one-half or two-thirds and when so reduced should not exceed the page size of the "Report," which will be about 4¼ by 7 inches.

8. Authors of papers which are to be illustrated by lantern slides are urgently requested to state on their paper the size of slide used so that suitable arrangements may be made. Failure to observe this may result in disappointment and delay. (See Rule 2.)

9. The Congress obligates itself to have its final Report and Proceedings, including subject and authors' index, completed and ready

for distribution on or before December 31, 1912; in case those Reports and Proceedings be not ready for distribution by that date, authors of all papers received and accepted *after* June 30, 1912, may then publish in any journal or publication that they may elect. (Note: This refers only to the Report and Proceedings bound in paper; members desiring cloth bound sets can obtain them at an advanced charge over the \$5.00 membership fee; such advanced charge will be announced later, but will probably be \$2.50; delivery of these cloth-bound sets will be about 90 days later than of the paper-bound sets.)

Authors of papers received *before* the close of June 30, 1912, may publish those papers in any publication they may elect *after* the paper is read or *after* the Congress has adjourned. (See Rule 12.)

10. Authors of papers accepted and printed in full or in abstract will receive free of cost and all delivery charges, not to exceed fifty (50) reprints of each paper or abstract; additional copies of reprints can be had upon payment of the prices for such copies, which prices will be announced later. The Congress cannot undertake to furnish reprints of papers if the order for such reprints is not attached to the paper or abstract when received by the American Committee. (See Rule 2.)

11. Papers and their abstracts, *both in duplicate*, must be in the hands of the American Committee not later than June 30, 1912. All papers received *prior* to that time and accepted will be printed in their respective Sectional Volumes and distributed to such of the attending members of the Congress as may desire them, at or before the opening of the Congress. Papers received *after* that time, if accepted, will be printed, but may appear in an appendix which may or may not be ready by the opening of the Congress; the Congress cannot then undertake to print them along with the papers of those sections to which they may be assigned and which were received prior to June 30, 1912.

12. No paper offered to and accepted by this Congress can be at any time published elsewhere without giving credit to this Congress for such article or publication. However, Governmental publication of papers contributed to the Congress are exempt from the above requirement as to giving credit to this Congress.

13. All authors, as a matter of course, agree not to publish their accepted papers in any other publication except as herein pro-

vided, and, further, they agree to abide by any final decision of the Congress with respect to such paper or papers, their presentation, discussion or printing.

14. Rejections by Sectional Committees will not be final; their decisions will be reviewed by the Committee on Papers and Publications, but rejection by that Committee will be final.

15. Authors of finally rejected contributions will be notified in writing of such rejection immediately after it has been made, and, as far as the Congress is concerned, such final rejection is strictly secret and confidential. Rejected manuscripts are to be returned to their authors. (See Rule 16.)

16. The Congress will not publish a list of rejected papers nor state what papers have been rejected; directly after the closing of the Congress all records relating to rejected papers and like contributions will be destroyed; any and all proceedings as to rejected papers or like contributions, so far as the Congress is concerned, will be strictly secret and confidential.

17. Any paper which is of a pronounced polemical, advertising or personal character may be thereby disqualified and for that reason alone rejected, regardless of whatever merit the paper may otherwise possess.

18. The Congress reserves the right to reject any paper or other contribution that may be offered to it.

19. The Congress reserves the right to print the full paper only, or the abstract only, or the title only, in each case with the author's name and post-office address.

20. Authors are requested to state on the papers themselves their preferences for the sections in which they wish them to be read; the Congress will respect that request wherever practicable, but reserves the right to assign the paper to any other section that may be deemed more appropriate, and such disposition is final.

21. Authors will *not* receive printer's proofs of their papers or abstracts; nor will their papers or abstracts be revised after receipt by the American Committee; printing will be accurate to copy.

22. The time consumed in reading or presenting the substance of any paper by an author or his representative at a meeting of a Section must not exceed ten (10) minutes, except by special permission of the Sectional Executive Committee.

23. In the absence of an author or his rep-

representative the paper will be read by title only, and if there be any discussion it must be based upon the paper as printed, because neither the paper itself nor its abstract will be read; exceptions to this rule can be made only under regulations that may be adopted by each Sectional Executive Committee.

24. Discussions of a pronounced polemical, advertising or personal character may be ruled out by the Chair on that ground alone and not permitted to appear in the printed record; the ruling of the Chair in such matters is final and is not subject to revision or appeal.

25. Participants in discussions will be given an opportunity of editing the manuscript reports of their remarks, but printer's proofs will not necessarily be submitted to them, although wherever practicable they will be so supplied.

26. Participants in discussions must speak from the rostrum and *not* from the floor.

Respectfully,

EIGHTH INTERNATIONAL CONGRESS OF
APPLIED CHEMISTRY,

EDWARD W. MORLEY,
Honorary President.
WILLIAM H. NICHOLS,
President.
BERNHARD C. HESSE,
Secretary.

25 Broad Street, New York City,
December 28, 1911.

<>

THE ANNUAL MEETING OF THE AMERICAN DRUGGISTS' FIRE INSURANCE CO.

The annual stockholders and directors' meeting of the American Druggists' Fire Insurance Company was held at Cincinnati, O., on January 16th and 17th. There were present from outside of the city the following directors and members of the Advisory Committee: Charles H. Avery, L. G. Heinritz, J. H. Beal, W. S. Elkin, Jr., William C. Anderson, G. O. Young, Lewis C. Hopp, Simon N. Jones, John D. Muir, Walter Rothwell, George B. Kauffman, E. B. Heimstreet, Samuel C. Davis, and Charles H. Huhn.

The annual report of the officers of the company indicated a growing and prosperous business during the year 1911. During the year the A. D. F. I. Co. saved its policyholders the sum of \$27,954.48 which was retained by the policyholders, and represents a direct saving. It was shown that since the

company has commenced business it has saved its policyholders the sum of \$85,540.33.

On January 1, 1912, the American Druggists' Fire Insurance Company had policies in force to the amount of \$7,933,966.02 at a premium of \$83,367.79. Since the company commenced business it has written for the retail drug trade of the country insurance to the amount of \$22,875,782.02, at a premium of \$257,294.89. During the year an increase of 32 per cent in business written, and of 26 per cent in premium was shown over the year 1910. At the end of the fifth year the insurance in force and premiums thereon were more than four times greater than the first year.

ASSETS AND LIABILITIES.

Jan. 1, 1912.

ASSETS.

U. S. government, Ohio municipal and county bonds	\$292,822.98
Cash on hand and in bank, and accounts in course of collection..	26,250.91
Accrued interest on bonds and deposits..	4,618.88
Office furniture.....	561.60

Making a total of... \$324,254.37

LIABILITIES,

including liability for re-ins. reserve and fire losses not reported until after Jan. 1st, but incurred in December.

Agents' commissions, salaries, taxes and all other liabilities accrued	\$ 3,669.32
Estimated liability for fire losses not reported until after Jan. 1st	1,500.00
Re-insurance reserve...	41,975.69
Furniture and fixtures not admitted as asset under insurance laws.	561.60

Making a total of... \$ 47,706.61

Leaving a surplus as to policyholders of \$276,547.76

After making a saving to the policyholders which was retained by them of \$27,954.48, the following net profits are shown:

Profit from investments, less \$927.51 adjusted depreciation, leaving.....	\$10,957.23
Underwriting profit, etc.	20,653.02

Net profits for the year \$ 31,610.25

Out of the above net profits from all sources, the Board of Directors at its annual meeting declared a dividend on the capital of the company of nine (9) per cent, payable

March 1st. The extraordinary reserve of the company was increased by \$7,902.56, leaving the sum of \$5,797.69 as undivided profits. In addition to the increase in extraordinary reserve and undivided profits, the re-insurance reserve of the company was during the year increased by \$8,554.93, making as shown above, a total re-insurance reserve on the 31st day of December, 1911, of \$41,975.69.

INCREASED SERVICE FOR THE RETAIL DRUG TRADE.

The Board of Directors approved a re-insurance treaty with a large Eastern Company, which enables the A. D. F. I. Co. to increase its service to the drug trade of the country. Hereafter the A. D. F. I. Co. will double the amount of insurance which it will carry on any one risk, this new feature to go into effect within the very near future. With the increased facilities in the service which can thus be rendered, it is estimated that the company can serve fully 95% of the retail drug trade throughout the country, in fire-protected towns with all the insurance they require, and the advantages which thus accrue to the drug trade of the country are of very great importance. The increase in service will apply throughout the country, outside of Greater New York and Philadelphia.

ELECTION OF OFFICERS.

At the annual stockholders' meeting the following directors were elected: Charles H. Avery, L. G. Heinritz, J. H. Beal, W. S. Elkin, Jr., William C. Anderson, G. O. Young, A. O. Zwick, Lewis C. Hopp, Simon N. Jones, John D. Muir, Walter Rothwell, George B. Kauffman, M. S. Kahn, E. B. Heimstreet, Frank H. Freericks.

After the organization of the new Board of Directors, the following officers were elected: President, Charles H. Avery; Vice President, L. G. Heinritz; Secretary and General Counsel, Frank H. Freericks; Treasurer, George B. Kauffman; Executive Committee, Charles H. Avery, L. G. Heinritz, Walter Rothwell, J. H. Beal, George B. Kauffman, A. O. Zwick, and Frank H. Freericks.

Under a change in the Code of Regulations the Advisory Committee of the company will hereafter be selected by the Executive Board.



THE RICHARDSON BILL.

Below is given the text of the bill known as H. R. 14,060, introduced into Congress by Representative Richardson, and designed to amend the Federal Food and Drugs Act in

accordance with the recommendations of President Taft to the last session of Congress.

The bill is especially designed to prevent the making of false and misleading statements regarding the curative virtues of proprietary medicines. The bill is deserving of careful study, and the editor will be pleased to provide space for its discussion by members of the Association.

That sections six, seven, and eight of the food and drugs act, approved June thirtieth, nineteen hundred and six, be amended as follows:

Amend section six by inserting after the word "substances" the words "or device" and by inserting after the words "or other animals" the words "also soda and potash lye; also cosmetics, hair preparations and dyes and toilet preparations; also tobacco, snuffs, tobacco substitutes and all tobacco products," so that section six shall read as follows:

"Sec. 6. That the term 'drug' as used in this act shall include all medicines and preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use, and any substance or mixture of substances, or device, intended to be used for the cure, mitigation, or prevention of disease of either man or other animals; also soda and potash lye; also cosmetics, hair preparations and dyes and toilet preparations; also tobacco, snuffs, tobacco substitutes and all tobacco products. The term 'food' as used herein shall include all articles used as food, drink, confectionery, or condiment by man or other animals, whether simple, mixed, or compound."

Amend section seven by changing the word "a" to "any" in the phrase "is sold under or by a name," and transfer this amended phrase to the second line, immediately following the words "National Formulary."

Add after part second of the section the following:

"Third. If it contain any methyl alcohol or wood alcohol.

"Fourth. If any cosmetic, hair preparation or hair dye or toilet preparation contain any poisonous or deleterious ingredient.

"Fifth. If tobacco, snuff, or tobacco products contain any added poisonous or deleterious ingredient which may render such article injurious to health; or if any substance has been mixed or packed with these prod-

ucts so as to reduce or lower or injuriously affect their quality or strength; or if any substance has been substituted in whole or in part for the articles; or if they be mixed, colored, powdered, coated, or stained in any way whereby damage or inferiority is concealed; or if they consist in whole or in part of filthy, decomposed, or putrid animal or vegetable matter," so that section seven, so far as it relates to drugs, shall read as follows:

"Sec. 7. That for the purposes of this act an article shall be deemed to be adulterated—

"In the case of drugs—

First. If, when a drug recognized in the United States Pharmacopœia or National Formulary is sold under or by any name, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary official at the time of investigation: *Provided*, That no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the bottle, box, or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or National Formulary.

"Second. If its strength or purity fall below the professed standard of quality under which it is sold.

"Third. If it contain any methyl alcohol or wood alcohol.

"Fourth. If any cosmetic, hair preparation or hair dye or toilet preparation contain any poisonous or deleterious ingredient.

"Fifth. If tobacco, snuff, or tobacco products contain any added poisonous or deleterious ingredient which may render such article injurious to health; or if any substance has been mixed or packed with these products so as to reduce or lower or injuriously affect their quality or strength; or if any substance has been substituted in whole or in part for the articles; or if they be mixed, colored, powdered, coated, or stained in any way whereby damage or inferiority is concealed; or if they consist in whole or in part of filthy, decomposed, or putrid animal or vegetable matter."

Amend section eight as follows:

After the word "food" add "or drugs";

and further amend section eight after the words "any particular" by adding the following: "or when represented to the public in any way as having any remedial property, or if the compounder, manufacturer, or vender thereof is not authorized both under the law of the state or community where the article is produced, manufactured, or offered for sale, directly to the consumer, to practice medicine or pharmacy, or both, as the case may be; or if the label or labels or any advertisement, poster, circular, or otherwise, contain any false or misleading claims or representations relative to disease or symptoms of disease, to be read or intended to be read by the laity, which are intended or calculated to produce in the minds of persons reading them or to whom the same may be read, a false impression of the existence of disease in their own bodies, or if any statement or expression of opinion concerning its physiological, therapeutic, nutritive, or remedial property be made or promulgated in any manner so as to deceive or mislead, or which shall deceive or tend to deceive the purchaser, or if it be a drug offered for sale to the laity, directly or indirectly, which contains any habit-forming or deleterious ingredients, to wit, acetanilid, antipyrin, acetphenetidin, anesthesin, alcohol, aspirin, alpha and beta eucain, arsenic, barium salts, carbolic acid, caustic hydroxids, chloroform, chloral, cocaine, creosote, cantharides, croton oil, caffeine, cannabis, heroin, holocain, hydrocyanic acid, lead salts, morphin, methyl alcohol, mercury, salts, novocain, nux vomica, orthoform, phenacetin, the phosphides, theobromin, theophyllin, trional, stovain, strychnine, vernal, yellow phosphorus, cotton root, ergot, pennyroyal, rue, savin, tansy, the poisonous alkaloids, all heart depressants or excitants, or any compound or preparation or derivative of any of the foregoing, and to any food or drug product which is falsely branded as to the state, territory, or country in which it is manufactured or produced."

After the word "produced" at the end of the first paragraph of section eight, further amend section eight by adding the following:

"All these articles or preparations or derivatives shall bear a label containing not only the name by which they are known, but also the names of the parent substances from which they are derived," so that section eight as amended shall read as follows:

"Sec. 8. That the term 'mis-branded' as

used herein shall apply to all drugs or articles of food or articles which enter into the composition of food or drugs, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredient or substances contained therein, which shall be false or misleading in any particular, or when represented to the public in any way as having any remedial property, or if the compounder, manufacturer, or vendor thereof is not authorized both under the law of the state or community where the article is produced, manufactured, or offered for sale directly to the consumer, to practice medicine or pharmacy, or both, as the case may be; or if the label or labels or any advertisement, poster, circular, or otherwise, contain any false or misleading claims or representations relative to disease or symptoms of disease, to be read or intended to be read by the laity, which are intended or calculated to produce in the minds of persons reading them or to whom the same may be read, a false impression of the existence of disease in their own bodies, or if any statement or expression of opinion concerning its physiological, therapeutic, nutritive, or remedial property be made or promulgated in any manner so as to deceive or mislead, or which shall deceive or tend to deceive the purchaser, or if it be a drug offered for sale to the laity, directly or indirectly, which contains any habit-forming or deleterious ingredients, to wit, acetanilid, antipyrin, acetphenetidin, anesthesin, alcohol, aspirin, alpha and beta eucain, arsenic, barium salts, carbolic acid, caustic hydroxids, chloroform, chloral, cocaine, creosote, cantharides, croton oil, caffein, cannabis, heroin, holocain, hydrocyanic acid, lead salts, morphin, methyl alcohol, mercury, salts, novocain, nux vomica, orthoform, phenacetin, the phosphides, theobromin, theophyllin, trional, stovain, strychnine, vernol, yellow phosphorus, cotton root, ergot, pennyroyal, rue, savin, tansy, the poisonous alkaloids, all heart depressants or excitants, or any compound or preparation or derivative of any of the foregoing, and to any food or drug product which is falsely branded as to the state, territory, or country in which it is manufactured or produced. All these articles or preparations or derivatives shall bear a label containing not only the name by which they are known, but also the names of the parent substances from which they are derived."

Council Business

COUNCIL LETTER NO. 9.

PHILADELPHIA, January 2, 1912.

To the Members of the Council:

The following communication has been received:

"SECRETARY OF THE COUNCIL.—Council letter No. 8 has just been received. The proposed budget of appropriations for the year 1912 should not be passed upon without being given critical consideration. I believe that it would be to the advantage of the Association to simplify the various classifications under which the expenditures are made, as for example, the cost of stenographers should be charged to the Journal account. Journals for the reporter should be charged to the expenditures of the Report on the Progress of Pharmacy. Premium on the treasurer's bond, insurance, certificates and such items, should be classified with miscellaneous expenses. The cost of badges and bars might likewise be included under this heading. The appropriations for the N. F. Committee should be in one lump sum and not divided into appropriations. As a member of that committee, I see the difficulty of separating under different headings the expenditures on behalf of the work of that committee. Part may be experimental work, part may be clerical, postage and incidentals. Same may be said of the Committee on Membership. Why should two appropriations appear on the budget? These are all suggestions that should also receive careful consideration by the Committee on Revisions of By-Laws so as to simplify the work of the Association in the future.

"There is another item that appears on this budget, namely, an appropriation to the Committee on Unofficial Standards for \$150. At the Boston meeting an appropriation of \$300 was voted to this committee for the work of this year. We are now in the midst of preparing standards for the N. F. revision. While considerable of the work is accomplished, a great amount still remains unfinished, and at this critical juncture to curtail the appropriation to this committee would be a sad mistake. While not one cent will be spent unnecessarily in the progress of this work, the Association should assume a liberal policy so that the members of the committee will not be handicapped in making proper investigations on which to base their reports.

For the above reasons I am constrained to offer as a substitute for Motion No. 19, "Approval of Budget for 1912," the following:

"(a) That the appropriation for the Journal be made \$3700, including the item of \$200 for stenographers.

"(b) That the appropriation to the N. F. Committee be one lump sum of \$1728.62.

"(c) That the appropriation to the Committee on Unofficial Standards be \$300.

"(d) That the appropriation to the Committee on Membership be fixed at \$125 and that the item of unexpended portion of special appropriation to this committee, amounting to \$84.81, be merged into the treasury."

GEORGE M. BERINGER.

For convenience, these motions will be considered as follows:

Motion No. 20 (Appropriation of \$3700 for the Journal). Moved by G. M. Beringer, seconded by J. W. England, that the appropriation for the Journal be made \$3700, including the item of \$200 (in the Budget) for stenographers.

Motion No. 21 (Appropriation of \$1728.62 to the N. F. Committee). Moved by G. M. Beringer, seconded by J. W. England, that the appropriation to the National Formulary Committee be one lump sum of \$1728.62, instead of two separate items, as in the Budget.

Motion No. 22 (Appropriation of \$300 to Committee on Unofficial Standards). Moved by G. M. Beringer, seconded by J. W. England, that the appropriation to the Committee on Unofficial Standards be \$300, instead of \$150, as in the Budget.

Motion No. 23 (Appropriation of \$125 to Committee on Membership). Moved by G. M. Beringer, seconded by J. W. England, that the appropriation to the Committee on Membership (in the Budget) be fixed at \$125, and that the item of unexpended portion of special appropriation to this committee, amounting to \$84.81, be merged into the treasury.

In connection with this subject the following has been received from Otto Raubenheimer:

"SECRETARY OF THE COUNCIL—With great surprise I notice the reduction in the appropriation for the Historical Section from \$50 to \$25, quite especially as you wrote me about the middle of November that the sum of \$50 had been appropriated. (What Mr. Raubenheimer refers to was the statement made by the Secretary of the Council that the budget of appropriations for 1911-12—(Council Letter No. 27, June 14, 1911)—contained an appropriation for the Section on Historical Pharmacy of \$50, or the usual appropriation, but this was before the adoption of the motion making the new fiscal year commence with January 1, 1912, and hence applied only to the fiscal year between July 1, 1911, and December 31, 1911.—SECRETARY TO THE COUNCIL.)

"This historical work of collecting docu-

ments, books, reliques, etc., pertaining to pharmacy, is of great importance, and is increasing from year to year. As Hermann Schelenz, the German pharmaceutical historian, expressed himself some time ago, the A. P. H. A. was the first pharmaceutical body to undertake this work in a systematic manner and is to be congratulated upon its rapid progress.

"Surely \$50 annually is not out of the way, especially as it is used up by the Historian in buying supplies, material, folding boxes, etc., and clerical assistance. The Chairman and Secretary, I believe, pay the postage used in their correspondence out of their own pockets.

"As Chairman of Section on Historical Pharmacy I would respectfully request that the sum of \$50 be appropriated as in former years.

"OTTO RAUBENHEIMER."

Motion No. 24 (Appropriation of \$50 to Section on Historical Pharmacy). Moved by Otto Raubenheimer, seconded by T. D. McElhenie, that the appropriation to the Historical Section (in the Budget) be made \$50.

It will be understood that if the above motions carry, the Budget as changed, will be considered adopted.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER NO. 10.

PHILADELPHIA, January 22, 1912.

To the Members of the Council:

At the meeting of the City of Washington Branch, held December 20, 1911, Prof. Henry B. Floyd, 1016 Massachusetts avenue, N. W., Washington, D. C., was elected as a member of the Council, succeeding Dr. Murray Galt Motter, whose term of office had expired.

The Committee on Finance has corrected two errors in Budget of Appropriations for 1912—one, changing the title of Proceedings to Report on the Progress of Pharmacy, and the other, changing the appropriation to the Section on Historical Pharmacy from \$25 to \$50.

Motions Nos. 20, 21, 23 and 24, relating to Budget of Appropriations for 1912, have each received a majority of affirmative votes.

The following communication has been received:

"Secretary of the Council:

"DEAR SIR—It has occurred to us that it would be of great benefit to our readers as well as to the publishers of the National Formulary for us to publish a commentary on the various formulas contained in that

work, somewhat as the authors of the dispensatories have published comments on the text of the Pharmacopœia. Before proceeding with this undertaking, however, we desire to obtain from the owners of the National Formulary their permission to quote extensively from the text of that work. Will you please be so kind as to lay this matter before the Council for the purpose of ascertaining whether or not they will grant us the desired permission?

"Yours very truly,

"THE DRUGGISTS' CIRCULAR."

"New York, Jan. 9, 1912."

The following resolutions on the death of Charles E. Dohme are submitted to the Council:

CHARLES E. DOHME.

WHEREAS, The American Pharmaceutical Association has suffered a severe loss by the death of its beloved member, Charles E. Dohme, who passed away, after a lingering illness, on the evening of December 7, 1911; and

WHEREAS, It is but proper that the Association should place on record its sense of grief caused by the severance of ties extending over a period of forty-eight years; be it therefore

Resolved, That in the death of Charles E. Dohme the American Pharmaceutical Association has lost one of its most loyal members, who at all times during the many years of service as President, First and Second Vice-President, local Secretary and member of the Council, had endeared himself to all his associates by an untiring devotion to the interests and welfare of the Association, and who was ever ready to aid in its support with an open hand and heart,

Resolved, That the members of the American Pharmaceutical Association will ever cherish with warm affection the memory of their lamented associate, who by his affable manner and sterling qualities set an example worthy of emulation.

Resolved, That these resolutions be spread upon the minutes of the Association and that a copy be sent to the family of our deceased friend.

C. LEWIS DIEHL,
JAMES H. BEAL,
CHAS. CASPARI, JR.,
Committee.

Do you approve above resolutions? They will be regarded as *Motion No. 25 (Resolutions on Charles E. Dohme)*.

Motion No. 26 (Charles L. Wright a Life Member). Moved by H. M. Whelpley, seconded by J. H. Beal, that Charles L. Wright, of Webb City, Mo., a retired pharmacist and a member of the A. Ph. A. since 1901, be made a life member of the A. Ph. A. old style, without the proceedings.

Motion No. 27 (Election of Members). You are requested to vote on the following applications for membership:

No. 82. Ludwig Schiff, Western Wholesale Drug Co., Los Angeles, Cal., rec. by J. W. England and W. A. Pearson.

No. 83. Otto Frederick Frese, Sergt. 1st Class, Hosp. Corps, U. S. Army, Post Hospital, Fort D. A. Russell, Wyoming, rec. by Geo. P. Chase and Arthur Neville.

No. 84. Harry Milton Jennings, Sergt. 1st Cl., Hosp. Corps, U. S. Army, Fort D. A. Russell, Cheyenne, Wyoming, rec. by Geo. P. Chase and Arthur Neville.

No. 85. Charles Lincoln Leonard, Sergt. 1st Cl., Hosp. Corps, U. S. A., Field Hospital No. 1, Fort D. A. Russell, Cheyenne, Wyoming, rec. by George P. Chase and Arthur Neville.

No. 86. Theodore Edward Rosevelt, Sgt. Hosp. Corps, U. S. A., Ambulance Co. No. 1, Fort D. A. Russell, Cheyenne, Wyoming, rec. by George P. Chase and Arthur Neville.

No. 87. William Rushby George, Sgt. 1st Class, Hosp. Corps, U. S. A., Ambulance Company No. 1, Fort D. A. Russell, Cheyenne, Wyo., rec. by George P. Chase and Arthur Neville.

No. 88. Paul Compton, Sgt. 1st Class, Hosp. Corps, Field Hospital No. 1, Fort D. A. Russell, Cheyenne, Wyoming, rec. by George P. Chase and Arthur Neville.

No. 89. Neils J. Bjork, Sgt. 1st Cl., H. C., U. S. A., Fort D. A. Russell, Cheyenne, Wyoming, rec. by George P. Chase and Arthur Neville.

No. 90. William Humphrey Smith, White Plains, N. Y., rec. by John Palmer and Hugh Craig.

No. 91. John Oliver Perry, Sgt. 1st Cl., H. C., U. S. A., 344 South Sixth street, Lebanon, Pa., rec. by W. B. Day and J. W. England.

No. 92. John Alden Bailey, 738 Fourteenth street, Denver, Col., rec. by F. W. Nitardy and E. L. Scholtz.

No. 93. Edward Eberhardt, 315 W. Sixth avenue, Denver, Col., rec. by F. W. Nitardy and E. L. Scholtz.

No. 94. Julius Leiblinger, Sgt. 1st Cl., H. C., U. S. A., Fort D. A. Russell, Wyo., rec. by Geo. P. Chase and Arthur Neville.

No. 95. W. Scott Hubbard, 724 S. Ingalls

street, Ann Arbor, Mich., rec. by J. O. Schlotterbeck and J. W. England.

No. 96. Miss Jennie Rien, 211 Grant street, Portland, Ore., rec. by W. B. Day and J. W. England.

No. 97. Charles Cheves Haskell, 3033 Sutherland Ave., Indianapolis, Ind., rec. by Chas. R. Eckler and Frank R. Eldred.

No. 98. Earl Clare Ralya, 229 East Lake avenue, Seattle, Wash., rec. by Charles W. Johnson and Albert H. Dewey.

No. 99. Edward T. Yates, 809 South Sixteenth street, Omaha, Neb., rec. by Charles R. Sherman and H. C. Lane.

No. 100. James Harvey Green, 1101 S Twenty-ninth avenue, Omaha, Neb., rec. by Charles R. Sherman and H. C. Lane.

No. 101. George William Hicks, Sgt. 1st Cl., Hospital, U. S. A., Camp McGrath, Province of Batangas, P. I., rec. by W. B. Day and J. W. England.

No. 102. Walter Edwin Shiffer, Sgt. Hosp. Corps, U. S. A., Camp McGrath, Batangas, P. I., rec. by Fred Lehman and W. B. Day.

No. 103. Michael John Hogan, Sgt. H. C., U. S. A., Camp McGrath, Prov. Batangas, P. I., rec. by Fred Lehman and Wm. B. Day.

No. 104. Ernst A. Koelle, Sgt. Hosp. Corps, U. S. Army, Columbus Barracks, Columbus, Ohio, rec. by G. Cushman and Wm. B. Day.

No. 105. Fred H. McClure, Sgt. Hosp. Corps, U. S. Army, Columbus Barracks, Columbus, Ohio, rec. by G. Cushman and Wm. B. Day.

No. 106. Ed. W. Case, Main street, Picton, Ontario, Canada, rec. by H. M. Whelpley and Joseph P. Remington.

No. 107. Henry Watters, 138 Rideau St., Ottawa, Canada, rec. by H. M. Whelpley and Joseph P. Remington.

No. 108. Oscar E. Ouellette, 32 West Adams street, Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 109. L. A. Jeancon, 1032 E. Ninth avenue, Denver, Col., rec. by F. W. Nitardy and Frank J. Lord.

No. 110. Edgar C. Healy, 1400 Larimer street, Denver, Col., rec. by Thomas L. Bresler and L. T. Boutwell.

No. 111. William J. Wobido, 308 W. First avenue, Denver, Col., rec. by F. W. Nitardy and A. W. Clark.

No. 112. John Warren Wolfe Worthington, State Hospital, Norristown, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 113. Ira Brooke Phillips, Sgt. 1st Cl., Hosp. Corps, U. S. A., Medical Supply Depot, U. S. Army, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 114. Ray Westra, Sgt. 1st Class, Hosp. Corps, U. S. Army, Estado Mayor, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 115. Edward Daniel Gavagan, Sgt. 1st Cl., Hosp. Corps, U. S. Army, Medical Supply Depot, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 116. William Godfrey Sockland, Sgt. 1st Class, Hosp. Corps, U. S. Army, Division Hospital, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 117. Jason David Byers, Sgt., 1st Cl., Hosp. Corps, U. S. Army, Medical Supply Depot, U. S. Army, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 118. Charles Gallagher, Sgt. Hosp. Corps, U. S. Army, Medical Supply Depot, U. S. Army, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 119. John Rufus Behre, Sgt. 1st Class Hosp. Corps, U. S. Army, Division Hospital, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 120. Daniel W. Robinson, Sgt. 1st Class, Hosp. Corps, U. S. Army, Camp Treadwell, Pampanga, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 121. Charles Cooper Young, Chief Surgeon's office, Phil. Division, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 122. Edgar T. Hitch, Chief Surgeon's office, Phil. Division, Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 123. Victor S. Lagasse, 939 E. Eleventh avenue, Denver, Col., rec. by Chas. M. Ford and F. W. Nitardy.

No. 124. Ethel H. James, Boise Barracks, Boise, Idaho, rec. by Herman von Oehsen and Harry A. Davis.

No. 125. James Stanley O'Brien, 424 Sixth avenue, Pittsburg, Pa., rec. by J. A. Koch and Louis Saalbach.

No. 126. R. Blaine Patterson, 1313 Second street, The Dalles, Oregon, rec. by Geo. C. Blakeley and J. M. A. Lane.

No. 127. Howard Chamberlain Newton, Southboro, Mass., rec. by John G. Godding and Leon A. Thompson.

J. W. ENGLAND,
Secretary of the Council

COUNCIL LETTER NO. 11.

PHILADELPHIA, January 23, 1912.

To the Members of the Council:

Under date of January 15, 1912, the Secretary of the Council advised the Chairman of the Committee on Finance and the Treasurer of the Association that Motions Nos. 20, 21, 22, 23 and 24, relating to Budget of Appropriation for 1912 (C. L. No. 9), had each received a majority of affirmative votes.

Your Secretary had previously been advised by the Chairman of the Finance Committee of the correction of two errors in the proposed budget—one, changing the title of "Proceedings" to "Report on the Progress of Pharmacy," and the other, changing the appropriation to the Section on Historical Pharmacy from \$25 to \$50.

The following letter has been received from Chairman Koch, too late for inclusion in Council Letter No. 10:

"TO THE MEMBERS OF THE COUNCIL—I am informed that motions Nos. 20, 21, 22, 23 and 24 have each received a majority of affirmative votes and that the budget has been adopted with these changes. I regret that this is the case, as I do not believe that the merging of several accounts into one is to the advantage of the Association nor to the betterment of our financial methods. These, as we all know, are far from satisfactory. The greater the division of our expenditures under separate headings, the more insight we obtain. I cannot see why anyone should object to carrying a separate account under the headings of stenographers. If this item should be legitimately charged to the Journal account, which I do not by any means concede, then it is always an easy matter to ascertain the cost of the Journal to the Association by adding together the expenditures under the headings of Journal and Stenographers. The opposite, however, cannot be done. If the two accounts are merged, the cost to the Association of its stenographers can only be ascertained by going through the records of the Treasurer. Another advantage in two separate accounts is that in this case the expenditure for stenographers is limited to the amount of the appropriation, while under a merged appropriation there is no limit.

"Until comparatively recently all expenditures for the account of the National Formulary were made without any appropriation whatsoever. An appropriation was finally made. Since the revision of the National Formulary has been going on actively, and has been a source of expense to the Association, it was deemed wise by the Finance Committee to keep the expenditures incurred in revising the National Formulary separate, so that the Association should be able to determine the exact cost of revision. The other

National Formulary account was for the expenses of publication and distribution. It could certainly do no harm to keep these in two accounts separate

J. A. KOCH.
"Pittsburg, January 20, 1912."

Under date of January 19, 1912, Treasurer Whelpley replies to the Secretary: "Your letter of January 15 at hand. I do not see any other course to be followed than the one you outline."

J. W. ENGLAND,
Secretary of the Council.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., should be as complete as possible. When convenient a cabinet photograph should accompany data.

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CLIFFORD RAMSDELL.

Clifford Ramsdell, president of the Ramsdell Drug Company of New York, and a former member of the drug firm of Daggett & Ramsdell, died Saturday, December 30, 1911, from Bright's disease, at his home, 101 E. 75th St. Mr. Ramsdell was born in 1858, and graduated from the Massachusetts College of Pharmacy in 1882. With V. C. Daggett, Mr. Ramsdell in 1890 founded the drug firm of which he was a former member. He became a member of the American Pharmaceutical Association in 1907.—J. W. E.

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REUBEN D. ROBERTSON.

We are advised by A. H. Bushnell, Commanding Colonel of the Medical Corps, U. S. Army, General Hospital, Fort Bayard, New Mexico, that Reuben D. Robertson, a member of the American Pharmaceutical Association, died at that hospital on December 11, 1911, of pulmonary tuberculosis. Mr. Robertson became a member of the Association in 1911.—J. W. E.

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DEATH OF ELIEL SISTERS.

Information has just been received of the death of two sisters of the late Leo Eliel, Ex-President of the A. Ph. A. One died in October last, and the other on Christmas day.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



BALTIMORE BRANCH.

The annual meeting of the Branch was held at the Department of Pharmacy of the University of Maryland on Thursday evening, January 18th. The President, Mr. C. L. Meyer, was unable to attend, and the Vice President, Mr. J. E. Hancock, occupied the chair. The first order of business was the reports of the officers.

As Chairman of the Executive Committee, Mr. Hancock reported that this Committee had arranged for the meetings of the Branch, and had attended to the other routine business.

The report submitted by the Secretary-Treasurer showed a cash balance in the treasury, and a total membership of ninety-five (95), of which seven (7) are honorary, forty-four (44) active and forty-four (44) associate members. Five business meetings were held during the year, and one joint meeting with the Medical and Chirurgical Faculty in April.

For the Committee on Professional Relations, Dr. J. F. Hancock, Chairman, said that the Committee had worked very hard to make the joint meeting with the members of the Medical and Chirurgical Faculty successful, and to further foster the spirit of fellowship and cooperation between the physicians and pharmacists of the state. He believed that the Branch had been of great service in this work.

The Committee on Membership reported

that an energetic and fairly successful campaign for members had been carried on through the Chairman, Mr. Dunning. The gain in membership had more than counterbalanced the loss through deaths, resignations, etc., during the year. The Committee hopes to further increase the membership during the next year.

In the absence of their Chairmen, no reports were presented by the Committees on Education and Legislation, and on the Science and Practice of Pharmacy.

The following officers were elected:

President—E. F. Kelly.

Vice President—W. M. Fouch.

Secretary-Treasurer—E. W. Hodson.

Chairman Committee on Membership—H. A. B. Dunning.

Chairman Committee on Professional Relations—Dr. J. F. Hancock.

Chairman Committee on Science and Practice of Pharmacy—Dr. H. P. Hynson.

Chairman Committee on Education and Legislation—J. E. Hancock.

On account of the lateness of the hour, the discussion of the formulas of the new preparations proposed for admission to the National Formulary was deferred to the next meeting.

Dr. Hynson announced that this Committee would continue the work on these formulas begun at the November meeting.

Dr. J. E. Hancock referred to a movement inaugurated by the Baltimore Retail Druggists' Association to have pharmacists exempted from jury duty in Maryland. As President of the Maryland Pharmaceutical Association he had been asked to attend a meeting of the Retail Association, where this matter was discussed at some length, and steps taken to have the necessary legislation enacted at the present session of the General Assembly. The question was generally discussed, but no action was taken. Mr. Hancock was asked to cooperate on behalf of the Branch in any desirable legislation of interest to pharmacists.

After an informal discussion of the work of the Branch for the ensuing year, which will be taken up by the Executive Committee, the meeting adjourned.

The next meeting will be held on February 15th.

E. F. KELLY,
Secretary-Treasurer.

CHICAGO BRANCH.

The January meeting of the Chicago Branch of the American Pharmaceutical Association was the most largely attended and most interesting meeting of the season. It was held at the rooms of the Board of Pharmacy on Tuesday evening, January 16, and was devoted chiefly to a discussion of the progress of pharmacopoeial revision.

Preliminary to taking up the program of the evening, the Nominating Committee, consisting of Messrs. Snow, Patterson and Christensen, reported the following nominations for officers, who were then unanimously elected:

President, J. H. Wells; First Vice-President, S. K. Sass; Second Vice-President, Wm. Gray; Third Vice-President, Mrs. M. M. Gray; Secretary-Treasurer, W. B. Day. Committee Chairmen: Practical Pharmacy, I. A. Becker; Medical Relations, Dr. Bernard Fantus; Publicity, Otto Bruder, and Legislation, J. P. Crowley. Council Representative, A. H. Clark

Vice-President Becker, who had taken the chair early in the evening in the absence of President Storer, then requested the Nominating Committee to bring forward the newly elected officers, and President Wells was duly installed as the presiding officer. The other officers were presented to the Branch and the meeting was then turned over to Professor Clark, who had arranged the program.

In introducing the subject, Professor Clark briefly outlined the program of the work of revision so far and made a forecast as to the possible completion of the work of the various committees. He expected to see the work of revision entirely completed within the present year. He then brought up a number of features which seemed best suited for discussion. Among these were the manner of expressing solubilities—whether the solubility is to be stated following the present custom—a given weight in a given volume—or whether the amount of the substance contained in a given volume of saturated solution should be stated or whether both substance and solvent should be stated by weight.

Doctor Fantus favored no change from the present practice, although in certain cases, such as potassium iodide, it would be an advantage to have the Pharmacopœia state the amount by weight in a given volume of a

saturated solution. Mr. Paul and Mr. Stuart also thought the latter method to be preferable as being more accurate and more convenient. Mr. Wells and Mr. Storer favored the retention of the present method as being most generally adapted to the pharmacist's use. In connection with solubilities, the question of temperature and temperature determinations came up, and this brought in statements as to melting points and boiling points which were discussed by Messrs. Becker, Gray and Snow. The sentiment in favor of the retention of Fahrenheit temperature, with the centigrade temperature readings, seems to prevail. Even the strongest advocates of the metric system and the centigrade thermometer admitted that clinical thermometers were seldom or never graduated in the centigrade scale and that many physicians and even teachers in the medical schools still adhere to the old style of dosage, so that it would still be necessary to retain the equivalents for metric doses in grains and minims.

The physical constants of volatile oils were discussed by Professors Linton and Patterson and Mr. Barrett. It seemed to be the general opinion that the description of color, odor and taste, although of secondary importance to specific gravity and optical activity, should, nevertheless, be included in the Pharmacopoeial descriptions.

Mr. Day spoke of the introduction of the descriptions of the powdered drugs and expressed the hope that it would be found to include a brief and general description of these powders, which would be sufficiently comprehensive to suit the purpose and yet not be so finely detailed as to become the subject of controversy and quibble.

Mr. Gathercoal spoke of the necessity of making due allowance for small quantities of inert foreign material in drugs, such as the presence of stems in leaf drugs and of attached stems in several rhizome and root drugs, and of the need of mentioning these in the powders. He also made the point that the official definition should include a statement that would make it cover the comminuted or powdered drugs as well as the whole drug in each instance so that there might be no room for evasion of the Food and Drugs Act on these points. Mr. Gathercoal then offered the following resolution, which was seconded and adopted:

Resolved, It is the sense of the meeting

that the Revision Committee should introduce such statements as shall make the official title and definition include the drug in all forms of comminution.

A vote of thanks was unanimously given to the retiring officers, and in this vote of thanks especial mention was made of President Storer, who retires from office after having served for two years.

The next meeting will be held Tuesday evening, February 20, and will be devoted to a discussion of the Revision of the National Formulary, and an exhibit of the preparations of the National Formulary will be made. The program will be in charge of Prof. C. M. Snow and the meeting will be held at the University of Illinois School of Pharmacy.

W. B. DAY, *Secretary*.



NASHVILLE BRANCH.

The regular monthly meeting of the A. Ph. A. was held on Thursday afternoon, Dec. 14, 1911, at Furman Hall, Vanderbilt, with President J. O. Burge in the chair. The discussion of the formulas proposed for admission to N. F. IV, continued from last meeting, was again taken up and commented on as follows: It was thought that the strength of the Formic Acid used in the Compound Elixir Formates, should be stated. The 25 per cent acid was used in the sample exhibited and the quantity named in the formula was found insufficient to dissolve salts. There is no demand in this section for a preparation of this remedy, nor for its fancifully named proprietary forms.

The Elixir Cardamon Compound is a nice preparation and an agreeable aromatic.

There being so little demand for the Elixir Bitter Orange, its inclusion was thought to be superfluous—the Sweet Orange being used almost exclusively as a flavor.

There is some request for Elixir Sodium Salicylate Compound, and also for Elixir Manaca and Salicylates Compound, a formula for the latter would be welcomed in this section. The Essence of Pepsin seems to be the choice of physicians as a vehicle and its use instead of Aromatic Elixir was suggested.

The admission of too many simple vehicles should be discouraged, and the aromatic oils and spirits used directly in the preparation was suggested, as it would lessen the number

of preparations required to be kept on hand by the pharmacist, and be an encouragement for the manufacture of this class of Galenicals by the retailer.

It was thought distilled water recently boiled should be specified in Liquor Sodii Chloridii, and that its admission would give a preparation of uniform strength throughout the country instead of the various strengths now used. There is no demand in this locality for Aqua Phenolata.

The question was raised as to the destroying or retarding of the action of Pepsin by the aromatics in the Liquor Pepsin Antisepticus. This point should be tried out before its admission.

For Tincture Opii Crocata and Tincture Coccus Indicus, there is no demand whatever in this section. It was suggested that the use of Potassium Carbonate in the Tincture Larkspur made a darker and more efficacious remedy with the use of a weaker strength of alcohol.

Tincture Cactus, Tincture Passiflora and Tincture Pulsatilla each have some call in this section. The Elixir Saw Palmetto and Santal meets with considerable demand in this territory, and is considered a more desirable preparation than the tincture. No need for both preparations.

The demand for Liquor Carbonis Detergens is growing in this vicinity. It is believed that the English method of making it, with the application of heat to about 120° F. for twenty-four hours, will make a stronger and better preparation. Aromatic Castor Oil will make an acceptable additional preparation to the N. F., but it was thought Peppermint flavor would be preferable.



PITTSBURGH BRANCH

Notwithstanding the winds that howled around the corner of the College of Pharmacy building on the bluff overlooking the raging waters of the Monongahela river, the attendance at the January meeting of the Pittsburgh Branch of the A. Ph. A. was good. In the enforced absence of the Secretary, for the first time since the organization was born, a capable substitute was found in the person of Mr. J. S. O'Brien. The annual election of officers resulted in the choice of these good men and true to keep the wheels in motion for 1912: President, Andrew

Campbell; First Vice-President, Louis Saalbach; Second Vice-President, Peter G. Walter; Third Vice-President, Leonard K. Darbaker; Secretary, B. E. Pritchard; Treasurer, P. Henry Utech. For Committee Chairmen: Membership, Charles E. Willets Practice, F. J. Blumenschein; Medical Relations, Geo. W. Kutscher; Education and Legislation, J. H. Beal.

Dr. Blumenschein presented a formidable list of proposed deletions from the Pharmacopœia as urged by the Revision Committee, to which he strenuously objected, giving excellent reasons therefor in each instance. All of the objections were sustained, after exhaustive discussion, except the following:

Acetum Opii.—On motion of Dr. Koch, supported by Dr. Saalbach, the deletion was endorsed.

Acidum Sulphurosum.—Drs. Koch and Judd agreed that a formula for the extemporaneous preparation should be given, and it was adopted as the sense of the Branch that such action would be recommended, and the Chair appointed as a committee to formulate same, Drs. Judd, Blumenschein and Wurdack.

Cataplasma Kaolini.—On motion of Dr. Koch, supported by Dr. Blumenschein, the deletion was opposed because of the widespread use of this preparation.

Ceri Oxalis.—On motion of Dr. Judd, supported by Dr. Wurdack, deletion opposed because of the extensive use of the article by the medical profession. For similar reason the deletion of *Extractum Sumbul* was objected to.

On motion, the action of the Branch was referred to the Secretary, with instructions to transmit the same to the Chairman of the Revision Committee.

The Chairman of the committee to which the proposed new formulas for introduction into the National Formulary, Dr. Koch, submitted a partial report, in which he called attention to the statement contained in the letter from the National Formulary Committee to the Branches that it was not comments based upon theory that was wanted, but that pharmacists try the formulas out, make the various preparations, and then submit suggestions as to improvements or objections to the formulas from a practical standpoint. The only questions we are asked to pass upon are: Are they stable preparations, and, perhaps, are they ethical? But even that may be

barred under the literal meaning of the committee's request. The members have made but a few of the proposed preparations and they were especially the elixirs. In some of the elixirs, Dr. Emanuel suggests that the per cent of alcohol is not sufficient to prevent fermentation in the presence of so large a quantity of syrup, and recommended that the latter be replaced by glycerin.

In the same connection, on the other hand, Dr. Blumenschein suggests that a less radical change in formula would be to use sugar and water, in lieu of syrup, arguing that if syrup is to be used in the manufacture of elixirs it is folly to first prepare the syrup and then mix this with the other liquids, when a much better result would be obtained by using the equivalent amount of sugar (85 gm. for each 100 Cc. of syrup) and the addition of more water.

Further commenting upon the subject of elixirs, Dr. Blumenschein presents some practical points for consideration as follows:

A consideration of the principles of pharmacy should be observed before submitting any formula for trial and comment. One point which was presented in a paper read at the 1908 convention of the A. Ph. A., and has since been discussed before this Branch, and which seems to have escaped the notice of pharmacists generally, is this, having a solution of a substance endeavor to keep it in solution, or if it does precipitate, have conditions right for insuring its solution again effected. For example, in all of these formulas the solutions of volatile oils are directed to be mixed with the aqueous liquid, and then kieselguhr or talc is to be added. This process renders it difficult to secure a clear filtrate, with the unfortunate result that druggists buy these preparations ready made.

On motion of Dr. Koch, the following recommendations were adopted:

That the members of the Pittsburg Branch are not able to pass upon the keeping qualities of these low alcoholic elixirs, but that they presume that this has been thoroughly tested out and they would offer as a suggestion that sugar be used instead of syrup in making all of the N. F. Elixirs. That in the working directions for these elixirs, the operator be instructed to mix the oils with the alcohol, and flavoring agents with the kieselguhr, talcum or other filtering medium, and sugar, and then the aqueous liquid added. That synthetic oil neroli be

used instead of orange flower water. Elixir Formatum, that the formula for this be made to use Potassium Bicarbonate, Sodium Carbonate and Formic Acid instead of the salts now used.

Concerning Compound Spirit of Cardamom, inquire of N. F. Committee the object of inserting 1 Cc. of alcohol in the preparation.

Elixir Vanillin Compound, that on account of liability of its being mistaken for Extract Vanilla, the caramel be omitted.

Gargarysma Guaiac Compound, that we recommend the addition of 1 gram Tragacanth to the formula.

Tincture Larkspur, the formula to be changed by the addition of Acetic Acid 36 per cent, 100 parts, and the use of dilute Alcohol to make 1000. That it be made by maceration instead of percolation.

Tinctures of Pulsatilla and Passiflora, the use of the fresh instead of the dried herb.

In the proposed formula for Physiological Salt Solutions, specific reference be given to some authoritative method of sterilization.

A motion prevailed providing for the distribution of a number of proposed formulas among the members, with the request that they present specimens thereof at the next meeting.

B. E. PRITCHARD, *Secretary*.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.

<>

DR. BYRON F. DAWSON,
From San Luis Obispo, Calif.
To Rural Route No. 1, Box 77, Modesto, Calif.

JOHN J. MCCLUGAGE,
From 511 E. 63d St., Chicago, Ill.
To 1140 E. 63d St., Chicago, Ill.

CHARLES GIETNER,
From 300 S. 14th St., St. Louis, Mo.
To 3340 S. Grand Ave., St. Louis, Mo.

FRED W. TREBER,
From 3010 W. Broadway, Louisville, Ky.
To 3d St. and Broadway, Louisville, Ky.

HENRY BIROTH,
From 947 E. 37th St., Chicago.
To 130 Vermont St., Blue Island, Ill.

RICHARD L. NOAKS,
From 1915 Hyde St., San Francisco, Cal.
To Teralta, P. O. San Diego Co., Cal.

HENRY A. BRADSHAW,
From 39 S. 10th St., Philadelphia, Pa.
To 2423 Wharton St., Station D., Philadelphia, Pa.

EDWARDS F. WINSLOW,
From 2420 Callow Ave., Baltimore, Md.
To 1046 Lancaster Ave., Bryn Mawr, Pa.

SIDNEY C. YEOMANS,
From 3360 State St., Chicago, Ill.
To Signal Hill, Long Beach, Cal.

DAVID V. WHITNEY,
From 3722 E. 12th St., Kansas City, Mo.
To 3401 E. 12th St., Kansas City, Mo.

CHARLES TRUAX,
From 42 Wabash Ave., Chicago, Ill.
To 116 and 118 South Michigan Ave., Chicago, Ill.

DECEASED.

CLIFFORD RAMSDALL,
763 Fifth Ave., New York, N. Y.

WILLIAM H. GALE,
1053 N. 63d St., Chicago, Ill.

SAMUEL LOUIS RUMSEY,
Ft. and Hotel Sts., Honolulu, Hawaii.

WHAT TO GET FROM LIFE.

"Failure is often the turning-point, the pivot of circumstance that swings us to higher levels. It may not be financial success, it may not be fame; it may be new draughts of spiritual, moral or mental inspiration that will change us for all the later years of our life. Life is not really what comes to us, but what we get from it."—William George Jordan.

IODONE, LILLY---A New Chemical Compound

Liberates Free Iodine on Contact with Moisture

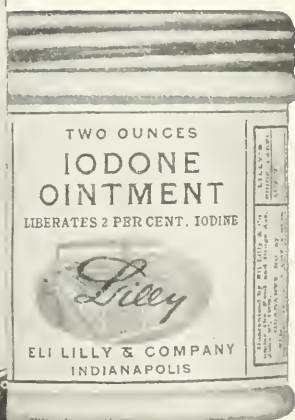
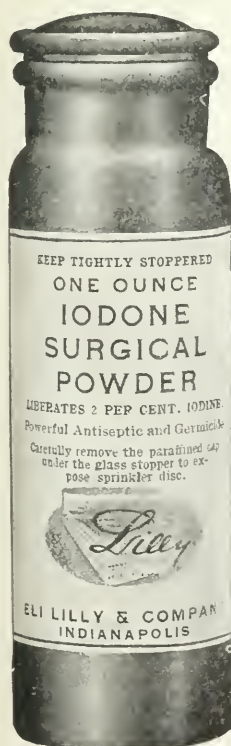
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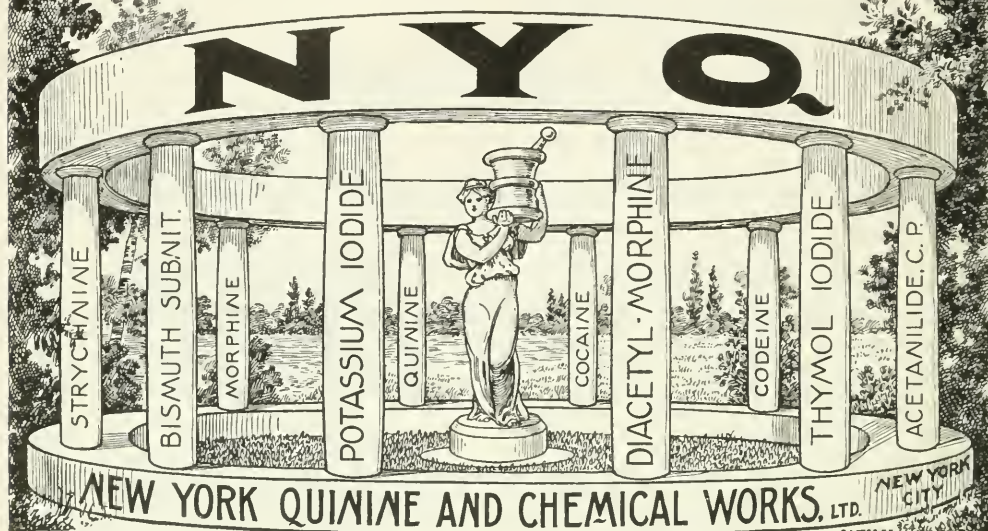
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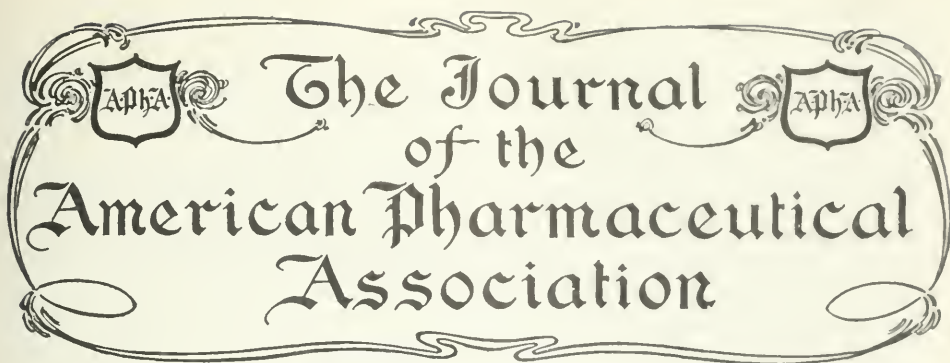
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The Journal of the American Pharmaceutical Association

Volume I

MARCH, 1912

No. 3

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, \$3.00 per annum, within the United States. To Canada, \$3.35. To other foreign countries in Postal Union, \$3.50 per annum. Single copies, twenty-five cents.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

Papers and communications for insertion in the JOURNAL should be sent to the Editor, James H. Beal, Scio, Ohio. Subscriptions should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

TO PROHIBIT INTERSTATE COMMERCE IN ALCOHOLIC LIQUORS IN CERTAIN CASES.

Bills of identical wording have been introduced into the U. S. Senate (S. 4043) and House of Representatives (H. R. 16214), the former by Senator Kenyon, and the latter by Representative Sheppard, both bearing the title, "A Bill to Prohibit Interstate Commerce in Intoxicating Liquors in Certain Cases."

By picking the bill, or bills, to pieces we discover the following features: If enacted the law will prohibit,

1. The shipment or transportation in any manner whatsoever
2. From any State, Territory or U. S. District, or place subject to the jurisdiction thereof, or from any foreign country;
3. Into any State, Territory, U. S. District or place subject to the jurisdiction thereof
4. Of any spirituous, vinous, malted, fermented or other intoxicating liquors of any kind:
5. When said intoxicating liquor is *intended*
6. By any person interested therein, directly or indirectly, or in any manner connected with the transaction,
7. To be received, possessed or kept, or in any manner used, either in the original package or otherwise,
8. In violation of any law enacted in exercise of the police powers of the state, etc., into which the shipment is made.
9. All contracts pertaining to such transactions are declared null and void, and

no suit or action shall be maintained in any court of the United States for the enforcement or protection of any alleged right based upon such contracts.

10. It is declared that there shall be no property right in or to such liquors while in the possession of any common carrier in connection with any transportation thereof in violation of the act.

There is no specific penalty provided for violation of the act, unless deprivation of the right to sue upon contracts connected therewith, and the loss of property right in the liquors while under transportation be regarded as such.

It will be observed that the prohibition extends to the shipment of alcoholic liquors only when they are "intended" to be used in violation of the law of the State, etc., into which they are shipped.

It is a question, though, whether the language "intended by any person interested therein, directly or indirectly, or in any manner connected with the transaction," is not so broad as to be capable of working hardship in some cases. For example, suppose a booze selling druggist orders from his jobber, in connection with other drugs, some ethyl alcohol, brandy, port or sherry, intending to dispose of them in violation of local law, would not the pleading of his intent enable him to defeat the jobber from recovering either for the liquors or for the entire bill of goods, since the latter were a part of the transaction?

Undoubtedly the intention of the people behind the bill is to have it apply only to alcoholic liquors when unlawfully sold to be used for beverage purposes. Whether or not this will be the *effect* of the act will depend upon the construction which the courts may place upon its language. If there is any possible ambiguity in its provisions, it should be corrected now.

The drug interests do not use the expensive ethyl alcohol because they desire to do so, but because of the fact that science has as yet failed to discover any substance which can be entirely substituted for it in manufacturing chemistry and pharmacy. They would cheerfully abandon its use if it were possible to do so, but they have the right to demand that its legitimate use shall not be hampered by unduly oppressive restrictions because of its illegal use by other interests.

The enactment of the bills is being pressed by the National Temperance Bureau, representing the Anti-Saloon League of America and other national temperance organizations. The writer has on numerous occasions been brought into personal contact with the chief officers of the Anti-Saloon League, and has always found them ready to listen to argument. They are reasonable men and understand the peculiar situation of the druggist with regard to the use and sale of alcohol and of alcoholic liquors.

If it is considered that any legitimate drug interest would be unduly hampered by the passage of this act in its present form, these officials should be applied to directly for a proper change in its provisions.

J. H. BEAL.

<□>

OLD TIME METHODS IN PHARMACY.

"There is no money in the drug business any more," says the old time druggist. To be sure there is not, if the business is conducted in the old time way: nor for that matter, is there any money in any other kind of business if conducted according to the customs of long ago. B. C. business methods won't attract Anno Domini customers.

The ancient pharmacy, with its old-fashioned tincture presses, macerating jars, and mortars big enough for a baby's bath tub, has shattered into a thousand pieces on the flagstones of commercialism, and like that celebrated character of the nursery rhyme, all of Uncle Sam's cavalry and infantry (alias the king's horses and men) can never stick this particular Humpty together again.

The wonder is that any one should expect the drug business to prove an exception to the general rule, and to remain unchanged in an age when all things else, physical and metaphysical, are in a state of flux.

Because the so-called professional features of the older pharmacy have passed away it does not follow, as sometimes argued, that modern pharmacy does not possess professional possibilities. What it does mean is that the crude processes of the old time apothecary have been superseded by more refined methods, that the old products of doubtful strength and composition have been replaced by products of definite strength and certain composition, and that the rule of thumb has given way to the rule of the balance and the burette.

Where the pharmacist has failed is in the lamentable fact that, unlike the physician and chemist, he has not sufficiently availed himself of the means of improvement afforded by his professional associations and the technical journals devoted to the cultivation of his art, and thus has fallen relatively behind these two sister professions.

The professional *possibilities* of pharmacy are greater today than ever before, but the rewards are for the industrious and progressive, and not for the slothful and careless.

The great thing lacking is a *general* disposition on the part of pharmacists to discover and develop these possibilities, and thus keep their art in even line with the developments in other arts and professions.

Develop or die is the law of progress. The judgments of economic law are harsh, and their sentences are without the quality of mercy, punishing those who err through ignorance with no less a penalty than those who are guilty of wilful violation.

Some men are like certain plants that when introduced into new climates and soil flourish beyond any point possible in their original environment, while others are so far lacking in adaptability that when conditions change they begin to lose out.

That there is still money to be made in the drug business when conducted according to modern business methods is attested by the example of thousands who have been successful in a measure never dreamed of by the old time apothecary.

In its commercial aspects the new pharmacy differs more widely from the old than it does professionally. This is because the age is distinctively a commercial one, and because every branch of trade which pharmacy touches upon has made tremendous strides in the art of exchanging articles of merchandise for units of U. S. circulating medium.

It is doubtless true, that the qualities which make a man successful commercially are different from those which make him a high type of professional man, but the two qualities are not necessarily antagonistic. The reason they are not commonly both highly developed in the same man, is because the complete develop-

ment of either alone requires about all of the energy and capacity that nature usually allots to one individual.

The writer can recall the time when he was obsessed with the idea that the men who did the largest drug business did so by virtue of selling inferior drugs, but on investigation he found that, as a rule, the men of large business handled the very best of drugs. This, after all, was a very reasonable thing to expect, because such men are good business men, and it is not good business to sell poor drugs.

The remedies for failing business are as numerous as astringents and purgatives in the U. S. P., and while some may be better in certain respects than others, there are a few general remedies that are applicable in nearly all cases.

One of these is that the losing out druggist must first thoroughly realize that his failure is due to some fault or mistake of his own, and not to "times out of joint," nor to the sins of humanity in general.

When the foregoing remedy has had its full effect and has purged him of his self-sufficiency, he must investigate the methods of other men who have made a success of the drug business under circumstances similar to his own, and then apply the same methods to his own business.

It would carry us too far afield to go into particulars and describe all of the details made use of by successful pharmacists, but it will serve the purpose in mind when this article was begun to mention one of them, and that is this:

Nearly all of the pushing, successful men in pharmacy are active association men. They are members of the A. Ph. A., and if retailers, of the N. A. R. D., and of their local association. They either attend the meetings of these associations, or they read their proceedings carefully, and they also read one or more good independent drug journals.

By these means they are brought into contact with the best minds in pharmacy. They not only learn new things directly, but their own minds are stimulated by their contact with others and they evolve new methods and expedients that would never occur to the druggist who pursues a hermit-like existence, and who fancies that he is saving money by not paying association dues, or that he is saving time by not reading the drug journals.

Whether the successful pharmacist is successful because he is an association man, or is an association man because he is successful, or whether both are due to the fact that he is a man of brains and capacity, one thing is fairly certain—the connection is causal and fundamental and not accidental.

J. H. BEAL.

Contributed and Selected

SOME SUGGESTED MODIFICATIONS OF THE PHARMACOPŒIA METHOD FOR THE ASSAY OF BELLADONNA LEAVES.¹

ARTHUR F. SIEVERS.

The present Pharmacopœia method for the assay of mydriatic alkaloids, while very practical in principle, has several defects in the details of its manipulation which could be easily remedied and which would add much to the accuracy of the method in the hands of the average analyst. In a previous article² the writer described the use of a separatory funnel for both macerating and percolating the drug, thus doing away with the cumbersome and tedious operation of transferring the marc from a flask to a percolator. This transfer of the drug is undoubtedly one of the principal sources of error, especially when in the hands of an inexperienced analyst. The writer has used the long, narrow, Squibbs separatory funnel in hundreds of assays and has found it admirably adapted to the work.

It is desired in this article to draw special attention to the question of menstruum. The amount specified in the present Pharmacopœia is not sufficient to exhaust the drug completely except perhaps with exceedingly slow and careful percolation. It has been found by experience that the maceration liquid does not extract the bulk of the alkaloids as would be expected but that a large quantity is extracted by the percolation. In view of this fact it is essential that the percolation be very thorough and the quantity of menstruum specified in the official method is not sufficient to assure complete exhaustion in the majority of cases.

During the course of some studies on the cultivation of belladonna the writer found it necessary to devise an assay method which would be applicable to very small samples of drug. It was frequently necessary to work on quantities as small as two grams, while the maximum was never more than five grams. The Pharmacopœia method was followed in principal but several modifications were introduced. In order to insure complete exhaustion of the drug a large amount of menstruum was used, the amount decided upon being 50 cc. for maceration for a sample of drug weighing between two and five grams and 60 cc. for the percolation. This is slightly more menstruum than is specified for 10 grams of drug in the official method. The amount of ammonia water used in the extraction was in the proportion of 1 cc. to every gram of drug used. This is about twice the amount used in the official method and was selected because it causes the proper agglutination of the drug and also insures the presence of sufficient alkalinity in samples which contain far above the average percentage of alkaloids. The shaking out process with acidulated water and later with chloroform was used as in the official method. In titrating hematoxylin was used as indicator.

The following table shows the amount of menstruum and ammonia water used

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²Merck's Report, August, 1910, p. 215.

in the extraction and the percentage of alkaloids found in a sample of *Belladonna* leaves and a sample *Datura Tatula* leaves.

DRUG.	Weight of Sample (grams).	Amount of Menstruum (c.c.)		Amount of Ammonia Water (cc.)	Percentage Total Alkaloids.
		Maceration.	Percolation.		
Belladonna Leaves	5	50	60	5	0.623
	4	50	60	4	0.621
	3	50	60	3	0.618
	2	50	60	2	0.621
Datura Tatula Leaves	5	50	60	5	0.481
	4	50	60	4	0.481
	3	50	60	3	0.490
	2	50	60	2	0.488

The above table shows that the method as modified is well adapted to assaying small samples. While the amount of menstruum used is probably considerably larger than actually necessary to insure complete exhaustion there is no harm in such excess and it is a very convenient quantity to work with. The menstruum can readily be recovered and by means of its specific gravity adjusted to its proper proportion of ether and chloroform so that it may be used indefinitely.

The method described has been used with equal success on *Belladonna* Root and *Stramonium* Leaves. When used on *Hyoscyamus* Herb, the proportion of ammonia water could no doubt be reduced considerably although the method has given very good and concordant results without any modification.

In view of what has been written it would seem then that the official process could be improved by the following several changes:

1. The introduction of a suitable vessel or apparatus such as a Squibb separatory funnel for the combined maceration and percolation. This would save time and insure against loss of material through transference to a percolator.
2. An increase in the quantity of menstruum both for maceration and percolation. This would insure a more thorough exhaustion.
3. An increase in the quantity of ammonia water used, when extracting the drug. This would aid in the complete liberation of the alkaloids from their salts.

BUREAU OF PLANT INDUSTRY,
U. S. Department of Agriculture.

THE PHARMACOPŒIAL REQUIREMENTS FOR CANNABIS SATIVA.*

H. C. HAMILTON.

The United States Pharmacopœia, Eighth Revision, specifies that "*Cannabis Indica* shall consist of the dried prepared tops of the pistillate plant of *Cannabis sativa*, grown in the East Indies and gathered while the fruits are yet undeveloped,

*Presented to the Division of Pharmaceutical Chemistry of the American Chemical Society.

and carrying the whole of their natural resin." *Cannabis Indica*, that is, Indian grown *Cannabis sativa*, has been considered to be a distinct variety, or to owe its activity to differences in the soil and climate of India, from that of other localities. A statement in the National Standard Dispensatory, under the head of *Cannabis Indica*, is as follows: "The rich soil, and cool climate, suitable for the production of hemp fibre, will not develop the medicinal properties, which, moreover, are largely sacrificed by allowing the male plant to grow near as a requisite for the production of hemp seed. Notwithstanding this fact, large quantities of tops of such plants are marketed for medicinal use, this to a great extent explaining the weak action of much of the medicine."

Various investigators have examined American hemp, which is grown almost entirely for its fibre and seed, and obtained results which indicate that the influence of soil and climate does not affect the quality of the extract. The results obtained by H. C. Wood (Proc. Am. Phil. Soc., Vol. XI, p. 226) are responsible for its having been made official in the Pharmacopœia of 1880. *Cannabis Americana* appears in this Sixth Revision with the description "*Cannabis sativa*, grown in the Southern States and collected while flowering." Wood examined the leaves and tops of the staminate plant and found the extract to possess a high degree of activity. The American variety, however, was dropped from the Seventh Edition of the U. S. P. and does not appear in the Eighth.

Later a more exhaustive investigation was made by Houghton and Hamilton (Am. Jour. of Pharmacy, Jan., 1908). The authors described in detail, the method employed to standardize these extracts and gave the results obtained from tests of eight samples grown in various localities in America. It was concluded from these experiments that "*Cannabis sativa*, when grown in various localities of the U. S. and Mexico is found to be fully as active as the best imported Indian grown *Cannabis sativa*." No part of the plant, of either the pistillate or staminate, was found inactive, except the stems and seeds and at no stage in its growth, from the flowering to the fruiting, was there any difference in the quality of the extract. It was determined, however, that the flowering top of the pistillate plant contained the highest percentage of active extractive matter.

The activity of American grown hemp has been noted also by True and Klugh (Proc. A. Ph. A., 1909). (See also Am. Jour. Pharm., Jan., 1912, page 31.) Their work, however, was more in the direction of obtaining a drug duplicating in appearance the imported article although they record the fact that the physiological effect on dogs was fully equal to that of the latter.

From time to time there has been obtained further evidence pointing to the necessity for specifications, which would insure that the drug so characterized is active and also that no drug having physiological activity should be rejected because of non-essential characteristics. Among these may be noted a few which suffice for illustration. From a sample of American hemp from the Continental Fibre Company of Kentucky the following data was obtained: The sample consisted largely of leaves with approximately 10% of tops. The yield of active extract soluble in cold alcohol was 8 per cent. From 15 grams of the selected fruiting or flowering tops there was separated 5½ grams or over 30 per cent of seeds. The yield of active extract from these tops deprived of their seeds was 13 per cent.

Two samples of hemp from another locality in Kentucky were examined and found to have $3\frac{1}{2}$ and 8 per cent respectively, of active extract. The low yield of the former was on account of its high content of stems and the small percentage of flowering tops.

From the flowering tops, stems and leaves of the pistillate plant of some hemp grown experimentally in Michigan, a yield of 10 per cent of active extract was obtained. This sample, carefully separated into its component parts, was extracted and tested physiologically. From the tops a yield of 12 per cent active extract was obtained while from the leaves the yield was 10 per cent of an extract equally active. The higher yield from the tops was sufficient to compensate for the presence of the short stems which contain no extractive.

The American grown hemp is not alone in being gathered in the fruiting instead of the flowering stage. A sample of *Gauza Tops* from India recently submitted by a German importer contained 50 per cent of seeds. The tops entirely freed from seeds contained 16 per cent of active extractive, but the net yield from the sample as submitted was considerably below the average. Samples containing 25 per cent of seeds are very common.

A further statement is made in the N. S. Dispensatory of 1900, that "it is most unfortunate, in the case of such a drug, that we have no means of establishing a chemical standard, since the active constituent is not known. Large manufacturing houses are able to improve the standard very greatly by employing physiological examination." It is a well known fact that much of the *Cannabis Indica* which is sold on the market does not meet the requirements of the Pharmacopœia, because it contains too large a proportion of ripe, or well developed seed. For that reason it is almost impossible for manufacturers to obtain any considerable quantity of crude drug, which meets the requirements of the Pharmacopœia. It therefore seems advisable that some means be taken to establish a standard, either chemical or physiological, which shall specify in no uncertain terms, what quality of *Cannabis sativa* will meet the requirements and make a physiologically active extract. The specifications should be of such a character that no drug containing a fair percentage of active extract need be rejected because of not meeting the U. S. P. requirements.

Since *Cannabis sativa*, grown in different localities, differs not at all in the quality of its active extract and since the leaves and the fruiting, as well as the flowering tops contain this active extract, there seems to be a physical basis on which, along with a physiological test, such a specification can be made.

The fact that little, if any, truly pharmacopœial hemp appears on the market was noted by Pearson (Bull. Am. Pharm. Assn., October, 1910). Various opinions were received from prominent pharmacists and teachers of pharmacy in response to a request from him with no considerable agreement among themselves. This lack of agreement made it more than ever evident that a reform in this particular is very desirable. The subject was referred to the writer, who in response to a request for a statement which would, in his opinion, cover the points in question, gave the following, which was published in the Bulletin of the American Pharmaceutical Association of January, 1911:

"Since almost every sample of *Cannabis sativa*, whether grown in India, the United States, or any other country, almost invariably contains seeds, and since-

these samples vary greatly in the amount of alcohol soluble extractive matter contained, the following specifications seem to be that which would insure a drug of standard quality.

"That the yield of solid extract *Cannabis sativa* be not less than 9 per cent and that this solid extract be entirely soluble in cold alcohol. 0.1 gram of this extract should produce the typical effect of the drug on a 10 kilo dog. The dog should be one which reacts to this drug and the effect noted is that of incoördination in its movements.

"The reasons for this specification are that almost any part, either the flowering top, the fruiting top or the leaf and either the male or the female plant, contains the active extract, but in quantities considerably different from the percentage found in that specified by the Pharmacopœia. When the top of the female plant contains a considerable quantity of seeds the percentage of extractive matter is lowered, but the activity of that extract is no less than from tops which have been gathered earlier in the season.

"The yield of extractive answering the above requirements is greater, usually, in the drug imported from India than from American grown hemp, and should be valued higher on that account. Occasionally drug which has been improperly dried or stored will be found inactive, although the percentage of extractive matter and its appearance may be no different from that which has its full activity."

The foregoing was written hastily and largely from the point of view of a pharmacologist. However, the extract, soluble in cold 95% alcohol, rarely fails to produce its typical effect on dogs. A pharmacist can readily make such an extract and thus be in a position to assay his own drug. With the additional knowledge regarding the relative amounts of extract contained in different parts of the plant, he is then in a position to make a rough choice among the samples submitted.

To the manufacturer the specification is even more satisfactory. He can purchase his drug on the basis of its yield of extract of standard quality regardless of the presence of parts which contain no activity.

If the drug contains an average of ten to twelve per cent of extractive matter of the desired quality, it then meets the specifications, while if the yield is low a proportionately larger amount of drug must be used to make a galenical preparation of standard quality.

Such a specification also opens the door to *Cannabis Americana* or in general to *Cannabis sativa*, since yield and activity are the essential features of the specification.

With further reference to the statement in the Dispensatory, relative to our inability to establish a chemical standard, it may be said, that although no well defined compound has been isolated, an extract has been prepared which represents apparently the nearest approach to such a constituent. There is reason to believe that the active constituent is of such a nature as to resist combination with reagents, and so to obtain crystalline compounds of a definite character.

Experiments along these lines will form the basis for a further contribution on the chemistry of *Cannabis sativa*.—(From the Research Laboratory of Parke, Davis & Co., Detroit, Mich.)

NOTES ON CHEMICAL TESTS OF THE UNITED STATES
PHARMACOPŒIA.

CARL E. SMITH.(Analytical Laboratory of Powers-Weightman-Rosengarten Company.)

Changes in industrial conditions, improvements in manufacturing and analytical methods, and experience of many analysts with the tests of the U. S. P., 8th revision, since its publication in 1905, have brought to light various deficiencies in standards and methods. Some errors and inaccuracies have been carried over from one edition to another, merely because attention was not drawn to them, owing to a former general lack of interest in U. S. P. standards. The comments here presented are in part results and experiences of the writer and his co-workers, in part quotations from the published literature on the subject. Many observations in these notes will be found superfluous and obvious by those having ample chemical knowledge and practical experience, but it is hoped that they will be of some use to others having more limited experience in this branch of analysis. In many instances it will be found that the observations made coincide with those of others engaged in the same field, but it has not been found practicable to acknowledge priority in every case among a considerable number of subjects, as this would have required a complete search of the literature, which could not be done for lack of time. Any injustice that may have been done any one in this respect, is unintentional and, it is hoped, will be so regarded.

The writer takes pleasure in acknowledging his indebtedness to Dr. George D. Rosengarten for facilities kindly placed at his disposal and to Mr. Joseph Rosin, of this laboratory, for much of the information given in the following pages.

GENERAL METHODS.

SELECTIONS OF SAMPLES.—While directions concerning this subject may be beyond the scope of a Pharmacopœia, this matter is decidedly of practical importance in connection with the examination of medicinal substances. Disputes have often been caused by a lack of proper methods in sampling. The following is abstracted from *Lunge's Chemisch-Technische Untersuchungsmethoden*, 5th ed., vol. I, pp. 8-22: Selection of representative samples is most difficult with materials in a coarse state of division, when not homogeneous in composition. In such cases care must be exercised that a due proportion of fine and coarse particles is taken and that materials that readily lose or absorb moisture are not exposed to the air longer than necessary. It is often advisable to take large samples from different parts of a consignment, reduce the entire sample to a moderately fine state of division, mix well, and take a smaller sample from this for analysis. The containers should be of such material that changes in or contamination of the samples is prevented. They should have well-fitting stoppers. Substances affected by light should be placed in containers impervious to light. Glass of dark amber color is often sufficient, in other cases a covering of heavy dark paper is required in addition. Sampling of liquids is comparatively simple. Semi-solids, if not perfectly homogeneous, should be thoroughly stirred before a sample

is taken. The analyst should mix thoroughly samples received of solid or semi-liquid materials before taking out any portion of them for analysis.

SPECIFIC GRAVITY.—The specific gravity data given in the U. S. P. are usually based on weights taken in air with brass weights. The data in some of the tables are corrected to a vacuum basis. The difference, however, is too small to be of importance in ordinary practical work. For liquids a pycnometer is always preferable when any degree of precision is required. For general laboratory use the Squibb pycnometer has been found more suitable than any other. Descriptions of it may be found in *Remington's Practice of Pharmacy* and in *Allen's Commercial Organic Analysis*. For an illustration of its use see SPECIAL PART, under *Aether*. The removable neck makes it eminently suitable for viscid liquids, as well. The average Mohr-Westphal balance is less accurate, not always trustworthy to the third decimal place, and the same may be said of most hydrometers.

SOLUBILITY.—Solubility determinations of solid chemical substances in various liquids are sometimes important aids in establishing purity, when other methods are insufficient, but it is well known that results vary greatly with the methods used. No instructions are given in the U. S. P. nor in most other pharmacopœias. The Swiss Pharmacopœia gives instructions as follows: The substance, in fine powder, is shaken from one-half to one hour at 40° to 50° with a quantity of the solvent insufficient for complete solution and the mixture then cooled to 15°, with constant shaking. The quantity of dissolved substance is determined in the clear liquid either by evaporating a weighed quantity and weighing the residue, by taking the specific gravity of the solution, or by other suitable analytical methods.—This method has the disadvantage that often a supersaturated solution is obtained unless allowed to stand at the standard temperature an unreasonably long time. Another source of error lies in the employment of an excess of the solute. If this contain a considerable amount of soluble impurities and a decided excess be taken, a disproportionate amount of the impurities may be dissolved and the solubility be thus found too great. The more accurate methods, however, require special apparatus not found in the average laboratory and too much time. For an approximate determination, exact enough for many purposes, the substance is passed through a silk sieve (about 50 meshes to the linear cm.), a weighed quantity is shaken with an insufficient amount of the solvent (measured or weighed) for a few hours, then small quantities of the solvent are added from time to time until solution is complete.—For an elaborate study of this subject by Atherton Seidell, the reader is referred to *Hygienic Laboratory Bulletin No. 67* (1910).

MELTING POINT.—No official method for melting point determinations is given in the U. S. P. That greatly divergent results are obtained by different methods is well known. For a detailed study of this subject by George A. Menge, see *Hygienic Laboratory Bulletin No. 70* (1910). The capillary tube method, as applied to organic and some inorganic chemicals in powder form, is too well known to call for a description here.—*Drying of Sample.* To prepare the substance to be tested, directions are frequently given,—e. g., by the German, Austrian, and Swiss Pharmacopœias, that the fine powder be dried uniformly for at least 24 hours in a desiccator containing sulphuric acid. This will cause discrep-

ancies with substances containing crystal-water that do not yield their water readily at ordinary temperatures. With compounds containing no crystal-water the rate of desiccation varies greatly also; very hygroscopic compounds may require much longer than 24 hours, while others may be dried in this manner in a much shorter time. A better practice would be to continue the drying until a constant weight is reached. In laboratory practice a saving of time is often important and it is then preferable to dry the powder (sifted through silk having about 40 meshes to the linear cm., as advocated by Menge) at an elevated temperature, low enough to prevent other changes, such as fusion, partial volatilization, or decomposition. Compounds containing crystal-water in some cases can not be rendered anhydrous by heat without some decomposition, unless it be done in a vacuum dryer. As many anhydrous compounds absorb water from the air more rapidly than is usually appreciated, suitable precautions to prevent this absorption should, of course, be taken.—*Charging the Tube.* As a result of experiments, Menge recommends that the inside diameter of the capillary tubes be not less than 0.8 mm. and not more than 1.25 mm. The interior of them should be kept clean and dry, preferably by sealing both ends immediately after drawing them out and dividing them into the required lengths or by keeping the supply, open at one end, in a desicator. The charge of sample, when tapped down, should form a solid column in the bottom of the tube not less than 2.5 mm. nor more than 3.5 mm. high.—*Thermometers.* Menge recommends a set of three standardized thermometers, about 30 cm. long, ranging, respectively, from -10° to 150° , 100° to 250° , and 200° to 350° . Since all pharmacopœial substances, for which melting point determinations are of value, melt below 260° , a set of two or three, covering a total range of about -10° to 260° , would answer. The Anschuetz thermometers, sold in sets of seven or less, are still better adapted to this purpose, having the advantage of obviating the need of emergent stem corrections, when a suitable bath is used. They are 12.5 to 15 cm. long and each one covers a range of about 60° .—*Baths.* Immersion of the capillary tube and thermometer directly into a liquid bath is by many considered preferable to the use of an air-bath surrounded by a liquid. The latter, however, has decided advantages and is generally adopted as a standard method, would answer equally well for pharmacopœial tests, as regards accuracy. The objections raised against the air-bath, aside from an alleged tendency to give too high results, are the difficulty of construction by the analyst and the cost when purchased (the cost of a Roth apparatus is \$1.80). An apparatus similar to that of Anschuetz and Schultz may be made from a small round-bottom flask having a rather long neck, and wide enough for insertion of a test-tube of 15 mm. diameter. The height of the test-tube is adjusted by means of a ring cut from thick rubber-tubing, which is fitted around the tube and rests upon the flared neck of the flask. The flask is two-thirds filled with sulphuric acid and rests upon wire-gauze. A long test-tube inverted over the stem of the thermometer makes emergent stem corrections unnecessary for low melting substances. An apparatus so constructed has been used with satisfactory results for years. Comparing the results obtained by using a Roth air-bath apparatus with those obtained by using liquid baths, upon 6 compounds, Menge found differences of from 0° to 0.6° only. Advantages that may be

claimed for the air-bath are (1) that no fumes from a liquid bath can enter into the capillary tube and affect the melting point, (2) that no stirring is required, (3) that one outer bath, sulphuric acid, is sufficient for all purposes, (4) that no emergent stem corrections are needed when short thermometers are used.—Menge advocates for a bath a round-bottom, straight glass tube of 30 mm. internal diameter and about 100 mm. long, containing sulphuric acid for ordinary use or cotton-seed oil for higher temperatures.—*Rate of Heating.* Menge recommends a uniform rate of heating of 3° per minute from 25° below the expected melting point until melting begins and a rate of 0.5° per minute during the melting interval. The importance of a uniform rate of heating cannot be overestimated, as no other factor influences the results so much as this.—*Reading of Melting Point.* The temperature at which the substance begins to melt should be recorded as well as that at which it is just completely melted, a narrow melting interval indicating a higher degree of purity than a wide interval.—*Correction.* Corrections for the lower temperature of that portion of the mercury thread, which is above the bath, should always be made. The formula of Kopp, given below, indicates the number of degrees centigrade to be added to the observed melting point:

$$\text{Correction} = 0.000154 N(T-t)$$

T = observed melting point; N = length of emergent thread of mercury above the bath in degrees Centigrade; t = mean temperature of emergent mercury-thread, measured by a small auxiliary thermometer the bulb of which is placed midway between the surface of the bath and the top of the mercury-thread of the main thermometer.—To illustrate the corrections required at different temperatures for thermometers of varying construction, Menge gives the following figures for two thermometers tested by him with use of a sulphuric acid bath, No. 1 being 300 mm. long and graduated from—6° to 406°, No. 2, about 310 mm. long and graduated from—10° to 263°.

Temperature of bath	80°	100°	120°	140°	160°	180°	200°
Correction for No. 1	0.43	0.54	0.90	1.38	1.97	2.63	3.39
Correction for No. 2	0.48	0.85	1.33	1.91	2.57	3.36	4.22

Melting Point of Fats.—The German Pharmacopœia gives the following directions: The melted fat is drawn into a tube of thin glass having an internal diameter of 0.5 to 1 mm., bent in U-form, in such manner that the fat forms an equally high column in each side of the tube. It is then kept for two hours on ice or for 24 hours at 10°. When attached to a suitable thermometer so that the fat is at the same height as the bulb, it is immersed into a test-tube of about 30 mm. diameter, containing a mixture of equal parts of glycerin and water. The upper open ends of the tube must be above the surface of the liquid. The bath is warmed very gradually. The temperature at which the fat becomes entirely clear is considered the melting point. The writer prefers this method with the addition that the bath is constantly stirred, that the warming is at the definite rate given above, and that the whole melting interval is recorded.

CONGEALING POINT.—No directions for the determination are given in the U. S. P. The German Pharmacopœia directs as follows: About 10 gm. of the

substance to be tested are melted in a test-tube of 20 mm. diameter. By immersion in water, the temperature of which should be about 5° lower than the expected congealing point, the liquid is cooled to about 2° below the congealing point, then stirred with the thermometer, with the addition of a small crystal of the same substance if necessary, to induce crystallization. The highest temperature recorded during the solidification is recorded as the congealing point.—If the congealing temperature differs much from that of the room, influence of the latter is lessened by placing the tube containing the liquid within a larger tube, to serve as an air-bath, as the change of temperature during the congealing interval should be very gradual, as in the case of melting point determinations.

BOILING POINT.—For purposes of identification, the following method is given in *Mulliken's Identification of Organic Compounds*: One or two drops of the liquid are placed in a thin glass tube, closed at one end, about 3 mm. in diameter. To regulate ebullition, a small capillary tube, open at the lower end, but closed about 2 mm. above the lower end by fusing the walls together, is inserted into the larger tube, which is then attached to a thermometer and heated in an apparatus such as is used for melting point determinations. The temperature at which an uninterrupted series of bubbles begins to rise is considered the boiling point.—For a test of purity at least 50 cc. should be distilled from a flask having about 50 per cent. greater capacity and provided with a side exit-tube. To regulate ebullition, fragments of pumice stone or platinum scrap should be added. The upper end of the thermometer-bulb should be slightly lower than the exit-tube. For low temperatures water-baths or air-baths are suitable, for high temperatures sand-baths or wire-gauze. To prevent overheating the vapors of low boiling substances by radiation from the bath, a circular sheet of thick asbestos, about 20 cm. in diameter and having a central circular opening about 3 cm. in diameter, should cover the bath before the flask is placed upon it. Distillation, when about 50 cc. are taken, should be at the rate of about one drop per second.—The boiling points of the U. S. P. are in greater part taken from sources that include corrections for the emergent mercury thread and for varying barometric pressure. These should, therefore, not be omitted. The first is made in the same way as described under *Melting Point*. Employment of short thermometers of the Anschuetz type make the correction unnecessary. Extreme variations of atmospheric pressure may raise or depress boiling points to the extent of 1° or more. According to a formula of Kopp, a correction of 0.0375° for each mm. pressure differing from 760 mm. is required, to be added to the observed boiling point when below or subtracted when above. This correction applies to variations of 720 to 780 mm. only.

TESTS OF IDENTITY AND PURITY.—In a number of instances the U. S. P. makes statements that may leave the analyst in doubt as to whether they are intended merely as information or as definite requirements. This applies particularly to physical constants, which are sometimes given in great abundance, when one or two of them would be sufficient to determine the quality of a substance. It is desirable that, when these are considered necessary for establishing identity or purity, the wording be such, that no doubt need be felt as to the exact requirements. Too much is at present left to the discretion of the analyst, who may

contend that only such tests need be made as are distinguished by such words as "should" or "must." The statement often made in parenthesis after tests that failure to respond to reactions for impurities tested for implies "absence" of them, in many cases is not strictly accurate, as the tests are frequently not sensitive enough to detect minute traces. There is at least one instance on record that a buyer demanded complete absence of certain impurities on the authority of these statements, which was equivalent to demanding a chemically pure product. It seems preferable, in view of this, that only the names of the impurities and adulterants be given after the tests. Another source of controversy is a difference in interpretation of such requirements as "no turbidity should be produced on the addition of barium chloride T. S.," without mention of a time-limit. It may be contended that no visible reaction should take place after an indefinite period, while a more reasonable interpretation would be that the requirement is met when no reaction takes place at once or within a few minutes. A definition of the exact meaning to be conveyed by such statements as "a solution of potassium hydroxide (1 in 4)" or "diluted sulphuric acid (1 in 2)" would be desirable. It will obviously make some difference in the strength of the diluted acid, whether 1 cc. or 1 gm. of the acid (sp. gr. 1.84) be diluted, also, whether the dilution be made *with* 2 cc. of the diluent or dilution be made *to* 2 cc. It will be seen that four interpretations are possible. While in most cases, when dilution is greater, the difference is negligible, in some instances it may exert an influence on the results of tests. In absence of a definition it seems permissible to assume that 1 cc. of concentrated sulphuric acid is to be diluted with enough of the diluent to make 2 cc. and that 1 gm. of potassium hydroxide of U. S. P. strength (85 per cent.) is to be dissolved in enough of the solvent to make 4 cc. A general rule is desirable as to the quantity of solution to be taken for a test involving turbidity, color and odor reactions, etc. For instance, a slight opalescence visible in a bulk of 20 cc. may be invisible in 10 cc. or 5 cc. of the same solution; it may be visible in a tube of 30 mm. diameter, but invisible in one of 10 mm. diameter, when viewed transversely. It is to be inferred from specific directions given in some cases, that about 10 cc. should be taken and the test made in a tube of about 20 mm. diameter, unless otherwise stated. The quantity of reagent might also be given to advantage, as the delicacy of a test often depends on this. The Netherlands Pharmacopœia directs addition of 3 drops of the test solution to 5 cc. of the solution to be tested for such impurities as chlorides, sulphates, calcium, iron, etc.—*Time Limit Tests for Heavy Metals*. It would seem that a specification of the internal diameter of the test-tubes to be used is more important than their capacity, which is given as 40 cc. A diameter of 18 to 20 mm. was probably intended, as that corresponds with the average dimensions of test-tubes of this capacity, but tubes of quite different dimensions are often used. The time-limit can be shortened to 15 minutes, as no increase in color or turbidity is ever noticeable after this interval.—*Modified Gutzeit's Test for Arsenic*. The hydrochloric acid used for this test should be practically free from arsenic. An acid of U. S. P. standard of purity, which is directed to be taken, may, and usually does, contain too much. It is better, however, to use sulphuric acid, as this is more readily obtained free from arsenic. So-called "shot" or "tear" zinc has been found preferable to the

"mossy" form, as the evolution of hydrogen from it is more regular, the mossy kind often reacting too violently at the beginning. On the other hand, very pure shot zinc may react too slowly, but the action is readily accelerated by the well known expedient of adding a drop of a weak solution of platinum chloride or copper sulphate. Absorbent cotton has been used to advantage in place of cheese-cloth. It is difficult so to roll the cloth that it will be free from channels that will allow hydrogen sulphide to pass through. It has been found insufficient in many cases to evaporate with sulphuric and sulphurous acids merely to 5 cc. or until the odor of sulphurous acid is no longer recognizable. To insure complete removal of the latter, it is better to evaporate until no further reduction in volume takes place. The quantities of reagents directed for the blank test are much too small. Made according to present directions it fails to show the presence of such quantity of arsenic in the reagents as would be enough to vitiate the results of the tests made with them. A uniform limitation of 10 parts of arsenic per million appears hardly consistent in view of large differences in doses.

QUANTITATIVE METHODS.—A statement regarding permissible water contents in chemical substances, which has an important bearing on the purity "rubrics," is often overlooked because of its inconspicuous place in the Preface of the U. S. P. (p. xxxviii). Many compounds, when "sensibly" dry, may fail to meet the rubric requirements fully, unless allowance be made for adhering moisture or for chemically combined water in hygroscopic "exsiccated" salts, which is permitted in the statement referred to.—*Determination of Water*. For the determination of crystal-water or adhering moisture the sample should always be placed in a container provided with a well-fitting cover, as most anhydrous compounds absorb water from the air with more or less avidity. Anhydrous quinine sulphate, for example, may easily increase 1 per cent. in weight, while it is weighed in an open dish. For light, bulky substances it has been found convenient to use shallow dishes of thin glass, with straight, vertical sides and flat bottom, about 5 cm. in diameter and 2.5 cm. high, and with ground-glass covers, fitted in the manner of the stoppers of ordinary weighing bottles. For ordinary purposes the customary "watch-glasses" with ground edges, in pairs, and held together with metal clamps, answer as well.—*Weighing*. While the weighing of quantities in round numbers or of quantities having some relation to molecular weights, as it is often directed in the U. S. P., has certain conveniences in simplifying calculation of results, this plan is usually open to grave criticism. With liquids such a course is entirely out of the question and with solids it is excusable only in rare cases, when the necessary exposure to air during the weighing is known to be totally without influence on the substance. Even then the highest degree of accuracy in weighing cannot be attained by this method. Hygroscopic and distinctly efflorescent materials cannot be weighed in this manner with even a moderate degree of accuracy. Only glass-stoppered weighing-bottles should be used for this purpose, *about* the desired quantities placed into them and weighed in the stoppered bottles. Fuming acids and other volatile liquids are best weighed in bottles containing enough of the diluent or solvent to be used in the analysis to prevent loss. When heat is generated by such admixture, time must be allowed for cooling to room temperature and air admitted to the bottle, after

cooling, to equalize the pressure, before weighing. Residues obtained after heating in a crucible should always be weighed in the *covered* crucible, with all avoidance of needless exposure to the air of even the covered crucible before and during the weighing, unless the substance is known to be non-hygroscopic.—*Volumetric Analysis.* It is often advisable for accurate titrations to take larger quantities of the sample than given in the text of the U. S. P. When an error of 0.1 or 0.2 per cent. is of importance, enough should be taken to require nearly a full burette of the volumetric solution, but not so much that the burette has to be filled more than once, as this would double the error of reading the volume. The best burettes for precise work have an internal diameter of about 10 mm. and are calibrated with ring-like markings instead of short lines. These rings are aids in bringing the eye to an exact level with the meniscus. When volumetric solutions are used at temperatures differing considerably from that at which they have been standardized, which is sometimes unavoidable, a correction for change in volume is required. N/1 solutions require a correction of about 0.1 cc. for each 100 cc. used, for a variation of 5° from the standard temperature, to be added when below, subtracted when above, N/5 and weaker solutions require a correction of about 0.5 cc. under the same conditions (see *Lunge's Chem.-Tech. Unters.-Meth.*, 5th Ed., V. 1, p. 55). Solvents and diluents intended for acid and alkali titrations should be neutralized before using, as they are seldom perfectly neutral. The same indicator should be used that is to be taken for the titration. Doubtless through an oversight, the U. S. P. directs titration of organic acids with alkali solutions that have been standardized at a boiling temperature, without stating that a boiling temperature should be maintained during the titrations, except in the case of lactic acid. Moreover, heat cannot be employed in titrating volatile acids. For such purposes, therefore, the alkali solutions should be standardized cold, which is readily done with potassium bitartrate that has been passed through a fine silk sieve before drying. The official methods for standardizing acid and alkali solutions are defective in that solutions standardized with one indicator are used for titrations with another indicator. As has been shown by Treadwell, methyl orange is not entirely insensitive to carbon dioxide. The discrepancy caused by a change of indicators is greater than can be ignored for precise work. The writer favors standardization with potassium bitartrate for phenolphthalein titrations and anhydrous sodium carbonate, made by heating sodium bicarbonate at 260° to 280°, for methyl orange. It has been pointed out by Treadwell, Lunge, and others, that sodium thiosulphate, when dissolved in water containing carbon dioxide, continues to deposit sulphur for some days. To the directions of the U. S. P., therefore, should be added, that, unless freshly boiled water is used, the solution should be allowed to stand a week before it is standardized.—*Non-volatile and Non-combustible Residues.* The U. S. P. frequently states of combustible or volatile substances, that they are "completely" volatilized by heat or that no residue should remain after combustion or that they should leave no weighable residue, when the quantity of material to be taken is not mentioned. These statements cannot be taken literally, since weighable residues can always be obtained when a sufficiently large quantity of the sample is employed. It is now possible, as a result of a large number of quantitative determinations of such residues, to suggest practical, allowable limits. The meaning of the term "unweighable" is not defined in the U. S. P.

The German, Netherlands, and Belgian Pharmacopœias define quantities less than 1 mg. as unweighable, the Swiss and Danish Pharmacopœias quantities of 0.5 mg. and less. Crucibles or dishes of platinum are usually preferable to porcelain for exact determinations of non-volatile and non-combustible matter, on account of better heat conduction and because of reaction of some ash constituents with silicates at high temperatures, with a consequent loss in weight of the residues. For quantities of 0.1 to 0.2 gm., platinum crucible lids are generally best suited. The German Pharmacopœia give the following directions for ash determinations: A suitable quantity is first carbonized in a crucible at a low temperature, then incinerated. To hasten combustion of the carbon, the flame is removed from the crucible occasionally for a short time. If complete incineration cannot be attained by a moderate heat, the mass is mixed with hot water and transferred to a filter of known ash content. The filter and contents are washed with a little water, then returned to the crucible, dried and incinerated. After cooling, the filtrate and washings are added and evaporated on a water-bath after addition of a little ammonium carbonate. The residue is heated to dull redness, cooled, weighed, and filter ash subtracted.

(To be continued.)

STATE BOARD OF PHARMACY QUESTIONS ON CHEMISTRY.

A. H. CLARK.

At the joint session of the Section on Education and Legislation with the Boards of Pharmacy, and Pharmaceutical Faculties, held during the Boston meeting and reported in the Bulletin of the American Pharmaceutical Association for December, 1911, there was presented the report of the Committee on Examination Questions. This committee was appointed by the Chairman of the Section in accord with a resolution passed during the Richmond meeting (1910).

I take it that the sole object of this work is to bring about a discussion of the subjects which are of mutual interest to the Boards of Pharmacy, Pharmaceutical Faculties, and to the candidate before these Boards and Faculties, as well as to the pharmacist in general. Free discussion and liberal criticism are the best means of furthering this end, and as I had not the pleasure of attending this particular session, I am taking the liberty of presenting here a few remarks on the questions submitted as proper for candidates writing on chemistry.

Examining bodies such as Boards of Pharmacy, must bear in mind that the candidate who appears before them may have secured his knowledge of chemistry from any of the following sources: He may be a university graduate, he may be a graduate from a college or school of pharmacy, he may have obtained his knowledge from some correspondence course, he may have obtained it from some night school, or from some "quiz course," or from a private tutor, or from his employer, or by individual effort alone. These conditions are made possible by the variation in requirements exacted by the different State Pharmacy Laws. For this reason no one set of questions can be prepared to fit every case, and each

Board of Pharmacy must frame its questions to fit the conditions prevailing in its particular territory.

There are, however, certain fundamental principles which should govern every examiner in preparing his questions, and the most important of these are enumerated in the report of this committee. (Bull. Am. Pharm. Assn., Vol. VI, No. 12, p. 661, Dec., 1911.)

Questions should be so worded that there can be no possible misunderstanding (*in the mind of the candidate*) as to their import.

Catch questions, as well as those relating to obsolete subjects, should be avoided.

Due consideration should be given to the candidate's source of information, as well as the date at which he obtained it. This is of vital importance. There are many questions in chemistry on which the highest authorities differ decidedly. An examination of a number of text books on a stated subject will bring to light a number of different views, and on some questions, widely different. Every teacher of chemistry will impart to his students his own peculiar ideas on disputed subjects and the successful examiner is the one who selects his questions and so frames them that they will admit of but one correct answer no matter what the residence or training of the candidate may have been. I have seen many questions on chemistry asked in State Board Examinations which, because of their ambiguity, I am certain I could correctly answer and yet fail to receive a single credit mark.

The examiner should bear in mind that he is not instructing in the subjects on which he examines the candidate and therefore his (the examiner's) particular views must not constitute the standard by which the candidate is judged. Men of the highest attainments and ideals and wide experience disagree on many subjects, and the examiner must admit this and give the candidate full credit for answers made in accord with the views of any recognized authority, or better still, strive to avoid touching on subjects which cover disputed ground.

Above all, questions should be so framed that the candidate can not answer them by a simple "yes" or "no" alone, or by a set definition. This requirement while important is one difficult to meet, I know. Students will learn definitions, and we are obliged to admit that this is better than nothing, although one may write definitions without end and never display any real knowledge of the subjects discussed.

I know that students generally think that if they can write an equation they know all that is necessary and many candidates before State Boards have the same idea. As a matter of fact an equation usually tells very few of the facts in the case. I would make it plain in every instance whether or not equations are desired. If an equation is wanted and nothing more, I would ask the candidate to write an equation to show this or that reaction. If equations are not wanted I would make it plain by asking the candidate to tell, without the use of equations, what happens when this and that react.

The candidate should not be expected to memorize figures such as atomic weights, specific gravity, boiling points, melting points, etc.

Let us see to what extent the questions submitted meet these requirements.

1. What are acids? Give the chief chemical properties of acids.
2. What are bases? Give their chief chemical properties.
3. What are salts?

The first part of these questions calls for an out and out definition. Suppose the candidate said that "There is but one acid, and that is hydrion." What credit would the examiner give him? And yet, "in terms of the ionic hypothesis, there is only one acid, hydrion (H^+)" is quoted from Smith, *General Inorganic Chemistry*, 1st Edition, p. 345.

Ostwald, *Principles of Inorganic Chemistry*, Findlay's Translation, 3d Edition, p. 188, et seq., refrains from giving a definition. He says: "In the name acid is summed up a whole series of properties." "All acids contain hydrogen which they evolve under the action of magnesium." He sums up the discussion of salts by saying that "salts are electrolytes." What would be the fate of the candidate who wrote as an answer to question three, "Salts are electrolytes"?

Noyes, *Organic Chemistry*, 1903, p. 221: "With our present conception of acids it seems to be a little difficult to frame a definition of organic acids or, indeed, of acids in general, which is not more or less arbitrary."

McPherson and Henderson, *Elementary Study of Chemistry*, Revised Edition, p. 107: "An acid is a substance which produces hydrogen ions when dissolved in water or other dissociating liquids." Here we find a definition.

Kahlenberg, *Outline of Chemistry*, 1911, p. 121: "An acid is a compound containing hydrogen which may be replaced by a metal, the product formed being a salt."

Dagget, *Theory of Pharmaceutical Chemistry*, p. 110: "When hydrogen is the base, an acid is formed, commonly having a sour taste." etc.

Attfield, *General, Medical, and Pharmaceutical Chemistry*, 16th Edition, p. 267: "Hydrogen salts (hydrogen easily replaced, wholly, or, in certain cases in part, by ordinary metals) are the common, sharp, sour bodies termed acids."

Sadtler and Coblenz, *A Text Book of Chemistry*, 4th Edition, p. 133: "Acids are compounds of hydrogen with an electro-negative element or radicle."

Here we have the ideas of a number of authors and some confusion is noted. Whether acids are the real salts of hydrogen or whether acids are the liquids resulting from a solution of these salts in water is, according to our modern theories, an open question. The U. S. P., VIII, defines hydrochloric acid as "a liquid composed of 31.9 per cent. of absolute Hydrochloric Acid ($HCl = 36.18$)."

Evidently this authority considers the gaseous hydrogen chloride an acid as well as its solution in water. Nearly all authorities agree that hydrogen chloride has very few if any "acid properties."

I have considered this question in detail as typical. When such differences of opinion are noted upon a subject so generally dealt with, and of such great importance, what can we expect on subjects of relatively slight importance and upon which no such amount of thought and experiment has been expended?

I fully appreciate the thought in the mind of the examiner when he framed these questions, but I think the object desired could best be accomplished in an entirely different manner. I would ask the candidate in place of question one, to mention the chief chemical properties of hydrochloric acid U. S. P. Objection might be made to this. The candidate might say that when hydrochloric acid is mixed with a solution of silver nitrate a white curdy precipitate is formed, etc. If he does, it is so much the better, as it shows he knows something about the properties of chlorides, and this is but one of the many prominent properties of

hydrochloric acid. If he mentions all the prominent properties, he must mention those that are peculiar to acids in general. If the candidate has a good general knowledge of acids he certainly can answer this question with little trouble. In the same way I would ask him in place of question two, to mention the chief chemical properties of a solution of sodium hydroxide in water.

As to question three a candidate will be more confused than by the first or the second question. Some writers would include "acids" (HCl , H_2SO_4 , etc.) as salts. Are such compounds as FeS , Fe_2O_3 , CaO , etc., salts?

The three questions might be combined to excellent advantage, and I would do so by asking the candidate to mention the chief differences in chemical properties of hydrochloric acid U. S. P., a solution of sodium hydroxide in water, and a solution of sodium chloride in water. The candidate who knows anything about "acids," "bases," and "salts," would necessarily have to display this knowledge to answer such a question.

4. Define the difference between normal, acid, and basic salts.

This is typical of many. Does this mean difference in color, in taste, in odor, in composition or constitution, or in therapeutic action? A candidate might know that usually normal bismuth nitrate is crystalline and the basic salt is a powder. That is a difference in these salts. I would ask him to explain, without the use of formulas, the difference in constitution (composition or chemical composition) between normal bismuth nitrate and basic bismuth nitrate. Or explain, without the use of formulas, the difference in constitution between sodium sulphate and acid sodium sulphate.

5. What is the official strength and specific gravity of sulphuric acid? What is meant by 66° acid?

This is not a chemistry question. It is a memory test. Further, is the U. S. P. acid indicated or the usual commercial acid? I would never require statements of this kind. There are a few instances where the strength of pharmaceutical preparations should be known, preparations containing dangerous or poisonous drugs, but never such data as is called for here. "66° acid" is obsolete in pharmaceutical practice, I think.

6. How is hydrochloric acid made? Give strength and specify gravity.

First of all, does the question call for a method of manufacturing HCl , or hydrochloric acid U. S. P., or of an acid of commercial quality? In any case it may be made by more than one method. I would ask the candidate to state how hydrogen chloride may be made from salt and sulphuric acid. Or if this seems to give too much information, ask him to tell how it might be made from salt. Or ask him how hydrochloric acid might be prepared from salt. I would not ask for strength or specific gravity.

7. What is meant by water of crystallization?

This is all right but does not bring out a candidate's knowledge of chemistry to any extent.

8. What percentage of dry sodium carbonate does $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ contain?

When questions involving atomic weights are asked I would give the candidate the necessary data.

9. How would you distinguish between ferrous and ferric salts?

This question might be a little more explicit. One might distinguish between

ferrous chloride and ferric sulphate by the fact that the former, dissolved in water and mixed with a solution of silver nitrate precipitates silver chloride and the latter does not. I would ask the candidate to distinguish between ferrous chloride and ferric chloride. He must know the tests for the two iron ions to answer this question.

10. Enumerate the chief differences between mercurous and mercuric salts.

The same criticism applies here as mentioned under questions four and nine. Many would say in this particular instance that mercurous salts are not poisonous, mercuric salts are, having in mind calomel and corrosive sublimate. This is one decided difference.

11. Give official name of mercuric iodide and describe it. State how it is made.

This question does not bring out a candidate's knowledge of chemistry to any great extent. It is more of a pharmacy question.

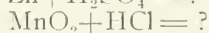
12. How is chlorine made?

Chlorine is made in a number of ways. Must the candidate describe all of them? Or only one? I would ask him to describe two ways by which chlorine is made, or may be prepared. Or to describe the manufacture of chlorine from manganese dioxide, or how it may be prepared by the electrolysis of sodium chloride.

13. Show by chemical equation how chlorine is liberated from bleaching powder. What percentage of chlorine should bleaching powder contain? Explain how chlorine acts as a bleaching agent.

Authorities differ as to the composition of bleaching powder. The U. S. P. does not state its composition. Ostwald says the question is not settled. This is a complicated subject at best. I would select as a test of the candidate's ability to write equations some interaction that is better understood and less complicated. The second part of the question is not clear. I am sure that the per cent. of chlorine contained in bleaching powder is not what is wanted, but the per cent. liberated on decomposition by acids, or the available chlorine is desired. It should not be required that a candidate remember this figure.

14. Complete the following equations:



This is the most ambiguous question in the list. It is an indisputable fact that every reaction takes place under stated conditions. As the conditions of temperature and concentration vary, the nature of the products produced in any chemical change will vary. Zn and H_2SO_4 do not interact at all, under ordinary conditions. If the H_2SO_4 has mixed with it a little water, say 5 per cent., there is still little or no action on the zinc at ordinary temperature. If the mixture is heated, zinc sulphate is formed with the evolution of sulphur dioxide and water. If the H_2SO_4 is mixed with a large amount of water, reaction takes place under ordinary conditions with the formation of zinc sulphate and hydrogen. Which one of these reactions does the examiner have in mind, and how is the candidate to read the examiner's mind? I would ask the candidate to write an equation to show the action of diluted sulphuric acid U. S. P. on zinc. Or to write an equation showing what takes place when zinc and concentrated sulphuric acid are mixed and heated. Even more indefinite than this is the question along similar lines that I have seen

in some lists of State Board questions. "Complete the following equation: $\text{Zn} + \text{HNO}_3 = ?$ " Any one of a dozen or more things happen, depending on the conditions of the experiment.

17. What is a hydrocarbon? Give official name and describe an official hydrocarbon.

The question leaves a doubt as to what is meant. Explain the constitution of, or the composition of, or what are the elementary constituents of the hydrocarbons, seems to me to be better. "Give official name." There is two distinct meanings to the term "official name" when applied to organic compounds. The name given to the compound by the U. S. P. is one, and the name given to it by the Congress of Chemists, held at Geneva in 1892, is another. This latter to the chemist is the only "official name." There are several official hydrocarbons. If this is worded in this way intentionally, to allow the candidate a choice, I see no objection, except that the word "describe" is not well chosen. Is it intended that the candidate shall describe its physical properties, or explain its chemical constitution and properties? I would ask the candidate to explain the chemical constitution of benzin, or petrolatum U. S. P., or to state the most prominent chemical properties of benzin, or petrolatum U. S. P.

15. How much zinc is required to make 100 grms. ZnSO_4 .

(Atomic weight $\text{Zn} = 65$, $\text{H} = 1$, $\text{S} = 32$, $\text{O} = 16$.)

All right as a problem except the candidate is asked to tell how much. Does this mean how many pounds, or cubic inches, or grains, or what? I would ask the candidate to state what weight is required.

16. 5 cc. of sodium hydroxide solution require 47 cc. normal H_2SO_4 to neutralize it, what is its percentage strength?

Must the candidate remember the molecular weight of sodium hydroxide? He certainly should not be required to do so. He is also asked to calculate the percentage strength of a solution by calculating the weight in a given volume. This is an impossibility. The weight of sodium hydroxide in 100 cc. of the solution should be asked for.

18. Give the chemical formula, strength, and specific gravity of official alcohol. State briefly how it is made.

Strength and specific gravity are again asked for. Not a question in chemistry but a memory test.

Some one might memorize the formula $\text{C}_2\text{H}_6\text{O}$ and know nothing at all about the subject. I would ask the candidate to represent the composition of alcohol by a structural formula.

Alcohol may be made in several different ways. The candidate is entitled to know exactly what is wanted. I would ask him to state how alcohol is made by the fermentation of grain, if that is what is wanted. I am informed that it is being produced on a commercial basis from sawdust. It may be made by a number of purely chemical processes.

19. What is wood alcohol? How can it be detected in ordinary alcohol? The same remarks apply here as made under seventeen. Explain the constitution, or chemical composition, I think is better.

20. What is denatured alcohol?

There are numerous denatured alcohols. If some one happened to know the

composition of one and wrote it he has answered the question. I would ask the candidate to explain what is meant by denaturing alcohol. This question does not bring out a candidate's knowledge of organic chemistry to any extent and I would refrain from touching upon it at all.

21. What is chloroform U. S. P. and how is it made commercially?

Is the constitution wanted, a description of its physical characteristics, or its chemical properties, or would the U. S. P. definition answer? I would indicate exactly what is wanted.

I believe that very few know how chloroform is made commercially. They may know from what it is made but not how. It is made in one way, and I would indicate the exact method, if I asked the question at all.

22. Give specific gravity and solubilities:

Of what? I would suspect that the question refers to chloroform but I may be entirely wrong. It is not a chemistry question in any way.

23. Describe two methods of making acetic acid.

Is it desired that the candidate describe the so-called "slow vinegar process" and the "quick vinegar process"? Suppose the candidate described its manufacture by the action of potassium dichromate upon alcohol, or by the destructive distillation of wood, or any of the several other methods he might mention, has he answered the question? If the two fermentation processes are what is wanted I would make it plain by asking the candidate to describe the two fermentation processes in common use. The question in this sense is not a good chemistry question.

24. Give a general description of acetates.

Chemical or physical characteristics or both? I would ask the candidate to mention the most prominent chemical characteristics of acetates or to discuss the chemical properties of acetates.

25. Distinguish between benzin and benzene both physically and chemically.

There is no serious objection to this question. To well describe the difference in physical properties would involve memorizing the physical constants of the two, which should not be required.

I do not know whether this list is intended as an example of questions for candidates writing for an assistant's certificate or for a full registered certificate, using the terms in the sense that they are applied in Illinois. Possibly it is intended to cover both. At any rate, no matter what is intended, I see no questions on those very important elements iodine and bromine. There is not a single question relating to the compounds of sulphur (except number five), phosphorus, arsenic, antimony, the alkali metals, or nitrogen, all of which are of the utmost importance to the pharmacist. Very little to bring out the candidate's knowledge of the nomenclature of salts. Very little that would test his knowledge of the analytical reactions of the metals, of the more common identity and purity tests of the U. S. P. I realize that it would be impossible to include everything in one set of questions, but I would omit such questions as those relating to solubilities, specific gravity, methods of manufacture, questions like numbers seven and eleven, and even the problems, and include some on these very important subjects.

Papers Presented to Local Branches

PURIFIED CARAMEL AND THE STANDARDIZING OF CARAMEL SOLUTIONS.*

GEORGE M. BERINGER.

The desire of the Committee engaged in the revision of the National Formulary to provide for preparations of uniform color wherever prepared if made in accordance with the Formulary recipes, has occasioned considerable study. This problem has been especially referred to a sub-committee on color standards whose reports have aroused considerable interest among those outside of the Committee as well as the members thereof.

The colorings most commonly used by pharmacists in elixirs, syrups, etc., at the present time, are caramel and cudbear. The attempt to standardize such indefinite substances has not proven an easy task and while a number of methods have been proposed, opinion has not yet crystallized into a conclusion that any of those proposed has entirely and satisfactorily solved the problems.

In the present communication the writer will confine himself to the consideration and review of the various propositions relating to caramel and leave the consideration of the problems relating to cudbear for another occasion.

Caramel is a complex mixture of a number of organic compounds produced by heating sugars to a temperature high enough to produce dark brown colorings without charring and, after the tumefaction has ceased, adding water. It is believed that it is now produced on the commercial scale entirely from starch sugar or glucose.¹ For the purpose of this communication it is unnecessary to enter into a detailed discussion of the chemistry of caramel. It is sufficient to state that it contains several coloring substances, an odorous principle separable by distillation, usually some undecomposed sugar, and a trace of caramelan a highly hygroscopic substance having a bitter taste and colorless when pure and varying proportions of water. The gravity usually ranges between 1.300 and 1.390; according to Wagner the manufacturer usually aims at 35° Baume = 1.312 at 15° C. The ash is usually quite small, rarely over 10 mg. per gram, and this commonly consists of sodium salts, chloride, sulphate and carbonate.

On heating sugars to the temperature necessary to produce caramel several dark colored bodies are produced some of which are soluble and others insoluble in either water or alcohol and at least one of these colored substances so produced requires for solution the presence of alkali or alkali carbonate and for this reason the manufacturer adds sodium carbonate or ammonium carbonate or ammonia in

*Read before the Philadelphia Branch of the American Pharmaceutical Association Tuesday evening, February 6, 1912.

¹For details of the commercial methods of manufacturing Caramel, see Frankel's translation of Wagner's work on Starch, Glucose, Starch, Sugar, etc.

the process of manufacture. There is also usually produced a small amount of a brown colored lustrous substance not soluble in any of these solvents.

The writer has recently attempted to review and test out the various suggestions that have been offered as a means of standardizing Caramel and its solutions. This work has led him into experiments along certain lines not covered by the other investigators.

One of the first propositions made was, that in order to obtain uniformity, the pharmacist should prepare his own caramel and formulas for this purpose were proposed. The initial proposition presented in the Bulletin of the American Pharmaceutical Association, December, 1909, page 479, "is to heat 1 pound of sugar on the sand bath at 180° C. for 2 hours and dilute it to 1 pint." All of the authorities are agreed that on heating sugar to this temperature and cooling there is formed the allotropic modification of cane sugar known as "barley sugar." However, I tried the suggestion and, as was to be expected, obtained a mass with scarcely any darkening and which could in no way be considered as Caramel.

A later suggestion offered (Bulletin of N. F. Committee No. 31, page 364) was "sugar 1000 Gm., water a sufficient quantity. Heat the sugar in an appropriate vessel on a sand bath at 200° C. for 2 hours. Then add to the caramelized fluid enough boiling water to make the finished product measure 1000 cc." This product was to be standardized by requiring that "1 cc. of this diluted with 309 cc. of distilled water should have the same intensity of color as the Standard Caramel Testing Solution." The standard test solution was Stevens Standard, which will be referred to later. The adjustment of the Caramel to the standard was obtained by either dilution or concentration whichever was required.

A test of this method showed that it did produce more or less Caramel, but that for the complete caramelization of the sugar a somewhat higher temperature, 210° to 215° C., was necessary. The resulting product was treated with several portions of boiling distilled water, the solution filtered and concentrated to the volume directed in the formula and this compared with a good commercial sample of Caramel was deficient in tinctorial power and had to be further concentrated to obtain a liquid comparing with the standard proposed. The residue on the filter and in the dish was then washed with a warm weak solution of sodium carbonate and this yielded a dark brown solution of the coloring insoluble in the water alone.

A practical difficulty arises in carrying out this formula for Caramel. On heating sugar to the temperature necessary there is given off odorous vapors and fumes that fill the entire building and unless made under a hood connected with a good draught the manufacture of Caramel would be impracticable and the average pharmacist could certainly not make it satisfactorily nor economically. The resulting product as made on the small scale by different individuals will also vary considerably in composition.

There is still another phase of the subject that must be considered. If the National Formulary introduces a formula for Caramel, then that formula even though it is not in keeping with the commercial process becomes the legal formula and the product, even though inferior, becomes the legal standard for all Caramel. This might prove a very serious source of annoyance and trouble to other industries in which the consumption of Caramel is vastly greater than in pharmacy. For this reason I am constrained to believe that the proposition that the N. F.

should introduce a formula for Caramel and that the pharmacist should prepare his own is untenable.

For Tincture of Caramel a formula has been proposed in the Bulletin of the N. F. Committee No. 31, page 365, to be made as follows:

"Caramel. 100 Gm.

Alcohol and water, each a sufficient quantity.

"Dissolve the Caramel in such quantity of alcohol 1 volume and water 3 volumes as may be necessary so that 1 cc. of the tincture when diluted with water to 100 cc. shall have the same depth of color as a standard solution prepared in accordance with the Stevens Standard Caramel Testing Solution."

The standard test solution proposed by Professor Stevens is as follows:

"Place 0.5 gm. sugar in dry test tube 20 mm. diameter. Immerse the tube to a depth of 5 cm. in a sulphuric acid bath, previously heated to 210° C. and keep at that temperature for 20 minutes. Remove the tube and when cold dissolve in sufficient water to make 200 cc. Add 50 cc. alcohol and sufficient water to make exactly 250 cc."

Several of the members who experimented with this formula claim that concordant results were not always obtained and that the width of the test tube and the degree of immersion in the bath as well as the quality of sugar used materially altered the results. The objection to sulphuric acid as a bath was met by a suggestion from Mr. Otto Raubenheimer that a bath of petrolatum be substituted therefor. As a result of my experimenting with this formula following out carefully the directions as to the amount of sugar, size of test tube, etc., I was enabled to obtain fairly uniform results. I prefer, however, to use a cottonseed oil bath to either sulphuric acid or petrolatum. On carrying out this test strictly in accordance with the instructions and attempting to dissolve Caramel in water it was found that the mass clung tenaciously to the test tube and was removed with difficulty. Further, that it was not entirely soluble in water. The insoluble portion was collected on a tared filter dried and weighed 145 mg. of residue insoluble in water. On heating this residue with a mixture of 10 cc. Sodium Carbonate test solution and 90 cc. of distilled water there dissolved out 75 mg. and I obtained a brown solution much darker in color than the original standard test solution. On making this up to the same bulk and then standardizing against the standard in Nessler tubes this was found to be 1.5 times as strong as the original standard. There still remained on the filter a portion of dark brown scales of colored material that was not soluble in either water, alkali solutions, alcohol or ether. These experiments were repeated with but very slight difference amounting to only 5 mg. of residue insoluble in water and the resulting fluids were practically identical.

Stevens Standard Caramel Testing Solution is subject to the criticism that it not only involves considerable time and routine on the part of the pharmacist, but still more, that it does not represent the entire Caramel as the stronger portion of the Caramel coloring, that requiring alkali for solution, is not taken up and his solution consequently represents only a part of the Caramel.

Dr. George A. Menge (American Journal of Pharmacy, March, 1911, 113) has criticized the Stevens process for standard caramel test solution and has recommended in place thereof a test solution made as follows:

"Make a sulphuric acid solution by adding 2 cc. of pure concentrated sulphuric

acid (specific gravity 1.84) to 12 cc. of water. Take 0.5 gm. of sugar in a test tube, add 5 cc. of the acid solution described above, and heat the mixture in a boiling water bath, with mixture continually submerged and with constant agitation, for exactly 5 minutes. Immediately add a little cold water and then 35 cc. of the U. S. P. test-solution of potassium hydroxide; finally dilute to 100 cc."

I have found this method to yield fairly uniform brown colored solutions but not entirely of the same tint as that obtained by the Stevens method. The Menge process is the color reaction of glucose with potassium hydroxide which is well known under the name of Heller's or Mohr's Test when applied as a qualitative test in the examination of urine. The color is produced by glucose and not by Caramel and it is entirely an arbitrary standard as applied to standardizing of Caramel solutions.

F. A. Upsler Smith (American Journal of Pharmacy, September, 1911, 411) recommends a process for standardizing Caramel by comparison with an arbitrary standard consisting of a Nesslerized solution of ammonia using a standard solution of ammonium oxalate to which 2 cc. Nessler's solution is added as the arbitrary standard fixed for comparison. Here again we are comparing Caramel with another coloring which is dissimilar.

From the writer's experiments he has become convinced that the preparations of Caramel should be standardized against the Caramel color itself and not against substitutes therefor as has been done in these proposed standard test solutions. This has led to the attempt to purify commercial Caramel so as to isolate the coloring material and use this as a basis for a standard color solution to be used either as a coloring itself or to standardize commercial Caramels. It was argued that if a purified Caramel of fairly definite composition could be produced that standard solutions could then be made with but very slight variation that could be used for such purpose. Commercial Caramels contain an uncertain quantity of unconverted sugar and probably traces of caramelan and experiments to produce a desiccated Caramel by evaporation of a number of commercial samples yielded a hygroscopic material which could not be gotten into a sufficiently definite form to yield uniform results.

Experiments were then tried upon the precipitation of the Caramel colorings by strong alcohol and as a result of a number of trials the following formula was evolved for a Purified Caramel:

PURIFIED CARAMEL.

Caramel	1000 Gm.
Alcohol	3500 Cc.
Monohydrated Sodium Carbonate.....	4 Gm.
Water, a sufficient quantity.	

Weigh the Caramel in a capacious bottle or flask and add 250 cc. of boiling water and thoroughly mix. Then gradually add 3000 cc. of alcohol, shaking after each addition. Then set aside for six hours; decant the alcohol on to a filter and wash the precipitated Caramel color with two portions of 250 cc. each of alcohol, decanting each time the alcohol on to the filter. Drain the alcohol thoroughly from the precipitate and dissolve it in 1500 cc. of warm water. Add the Monohydrated Sodium Carbonate, filter the solution and evaporate it to the consistence of a thick syrup. Spread this upon sheets of glass or tin plates and when dry scrape off in scales the Purified Caramel and dry further in a desiccator over Sulphuric Acid for a day or until it ceases to lose weight.

In this process the alcohol dissolves out of the Caramel, the unconverted sugar and the bitter and most of the odorous principles and only a small amount of the coloring. By distillation the alcohol can be recovered with but very little loss and used over again. The Purified Caramel so made is in dark brown, shining, translucent scales, free from bitterness and without any perceptible sweet taste and practically odorless. It is non-hygroscopic and dissolves readily and clearly in water diluted with alcohol. The yield averaged 27 per cent., and the Purified Caramel when compared in solution with the Caramel from which it was made showed a tinctorial value of three times that of the latter. A sample of the Purified Caramel so made was exposed in an open vessel to the atmosphere during a rainy spell of two days when the air was charged with moisture, yet it remained in dry non-adhering scales which had absorbed but very little water and was readily dried by being placed for a short time in the desiccator. The addition of the small amount of Sodium Carbonate was found to be necessary as without it the Purified Caramel when once made and dried was not again entirely soluble in water. This is readily understood from the preliminary explanation regarding the composition of commercial Caramels.

Tincture of Caramel.—I submit the following formula for Tincture of Caramel:

TINCTURE OF CAMEL.

Purified Caramel.....	50 Gm.
Ammonia Water	10 Cc.
Water	740 Cc.
Alcohol	250 Cc.

Mix the liquids and dissolve the Purified Caramel in the mixture; filter if necessary.

Tincture of Caramel so made appears to be permanent and can be used either as a coloring or to standardize Caramel solutions. 1 cc. tincture diluted with 99 cc. distilled water or better still 199 cc. distilled water will form comparative solutions against which commercial Caramels can be readily standardized.

It is to be noted that the formula proposed by the Committee for Tincture of Caramel was 10 per cent. of the Caramel prepared in accordance with the formula given. The formula now submitted contains but 5 per cent. of the Purified Caramel, but as this is three times the strength of the commercial Caramel the tincture resulting from this formula is very materially stronger than the formula first submitted to the Committee. If 5 per cent. be considered too strong then it can be reduced to 2.5 per cent. or to such strength as may be agreed upon.

A COMPARISON OF TEN SAMPLES OF CUDBEAR.*

HUGH CRAIG.

Ever since I was first attracted by the red and green show globes in the apothecary's windows, the color of pharmaceutical preparations has been of interest to me, and this interest has led me to much experimentation. This paper is the result of one series of experiments. But I had a particular reason for undertaking the experiments with cudbear: I was desirous of reconciling the frequent state-

*Read at the February meeting of the N. Y. Branch.

ment to the effect that by using powdered cudbear in the proportions directed in the proposed formula for red elixir the uniformity of the color of that preparation was assured, with the recent report that the amount of coloring principle to be obtained from cudbear varied in different samples as much as 1 to 2.

So I procured ten samples of powdered cudbear from ten retail drug stores, two each in New York, Brooklyn, and Philadelphia; and one each in Trenton, Princeton, Englewood, and Boonton. It is an interesting fact that the drug was obtainable in only about forty per cent. of the stores visited. Each sample was extracted, in the proportion suggested in the formula for red elixir, with a menstruum consisting of alcohol, glycerin, and water in the proportions of one, one, and two volumes.

There was a marked difference in the behavior of the powders in the menstruum, particularly with regard to the rate at which they imparted color to the liquid. One of the samples had scarcely tinged the menstruum at the end of an hour, and at the end of several hours the difference in color of the liquids was many times as great as it was in the finished "elixir." The process of extraction was carried on for eighteen hours, with occasional shaking during the first three and last one. To this long maceration I attribute the fact that the colors of the finished liquids are deeper than that of several lots made in exact accordance with the proposed process—of course the difference in the menstruums must also be recognized as bearing upon this feature.

Here is a tabulation of my observations:

Where purchased	Texture of powder	Color of powder	Streak of powder	Behavior in menstruum	Rate of filtration	Color of filtrate
1. New York.....	fine.....	purple.....	purple.....	diffused.... some floated, some sank.....	slow....	deep-cherry-red
2. Brooklyn.....	coarse....	brownish-purple.....	brownish-purple.....		rapid....	bright-purplish-red
3. Boonton, N. J..	fine.....	purplish-brown.....	brown.....	sank.....	good....	deep-purplish-red
4. Englewood N. J..	fine.....	light-purplish-brown.....	light-brown.....	sank.....	good....	bright-purplish-red
5. New York.....	granular.....	deep-purple.....	light-purple.....	sank.....	slow....	medium-purplish-red
6. Brooklyn.....	coarse....	brownish-purple.....	brown.....	sank.....	rapid....	light-purplish-red
7. Trenton, N. J..	fine.....	purple.....	purple.....	partially diffused...	slow....	bright-cherry-red
8. Princeton, N. J..	fine.....	light-purplish-brown.....	brown.....	diffused.... some floated, some sank.....	slow....	medium-purplish-red
9. Philadelphia....	fine.....	deep-purple.....	purple.....		good....	bright-cherry-red
10. Philadelphia....	fine.....	purplish-brown.....	brown.....	sank.....	good....	bright-purplish-red

A portion of the same menstruum, colored with an equivalent amount of an *old* tincture of cudbear, had a shade of cherry-red brighter and a trifle lighter than sample 1.

The statements of color in the foregoing table are arbitrary but the best possible in the absence of a standard list of colors for solutions. The color of No. 1 approximates very closely that of a 1 in 15000 aqueous solution of fuchsin; but the cudbear solution has a purplish tinge in thin layers.

The conclusions to be drawn from these observations are not quite so obvious as they at first appear. The ten lots of cudbear range through six distinct shades; and there are six markedly different colors among the solutions; but there is no direct relation between the color of the drug and the color of the resulting solution. It is plain that uniformity of color is not assured by the use of cudbear per se, and that some standard of color based upon a solution of a stable, definite coloring principle is the only means by which even approximate uniformity becomes possible.

BETTER TIMES FOR RETAIL PHARMACISTS.

"Some of our readers who are still in pharmacy have had sufficiently long experience to date back to the time when about all that a pharmacist knew regarding his neighbor was what disgruntled customers of his competitors told him. In those days pharmacists were more likely to look the other way than they were to greet a fellow pharmacist when they accidentally met. Times are now quite different and it is due to the good work of local organizations. Pharmacists have learned to know their neighbors as neighbors and to look upon their competitors as fellow-pharmacists in the profession and trade.

"While the social feature and the friendly feeling is an important factor in human life, it is the financial side of the present day pharmacists' calling that gives the most important contrast with conditions a few years ago. Retail pharmacists who once hesitated to pay one dollar per year dues in a state association are now perfectly willing to pay one dollar per month in their local organization, in addition to belonging to the state association and the A. Ph. A. and the N. A. R. D. They realize that the money invested in annual dues is really a business investment. Dividends are not paid regularly semi-annually, as is the case with bonds, but the returns are just as certain and as useful when they do come. The Chicago R. D. A., at its recent annual meeting, approved of a budget covering \$13,000.00 expenses for the current year. Among the items was a contingent fund for legal services. Members who get into difficulty through the regular routine of the drug business are not left to their own fate, but are backed in their positions by the entire membership of the C. R. D. A. and its corporate body. This one feature of paying dividends to members is alone worth the expense of membership. It is true that members may go along for a lifetime without legal complications, but many of our readers have had the bitter experience of suits of various kinds for which they were in no moral sense to blame."—*Meyer Brothers Druggist.*

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE PHYSICAL AND CHEMICAL CONSTANTS OF SEVERAL UNUSUAL FIXED OILS—

i. e., SILKWORM CHRYSALIDS, GRAPE SEED AND TEA SEED OILS.

CHARLES H. LA WALL.

The present day tendency in manufacturing operations is toward the utilization of materials which were formerly discarded as valueless and our knowledge is constantly being enriched by the publication of facts concerning substances which are being produced as by-products and for which appropriate uses must be found.

Three rather uncommon fixed oils have come into my possession recently which illustrate this modern tendency in an excellent manner. All of them were received from Mr. W. J. Warner, superintendent of a glycerin refinery at Berkeley, California.

Silkworm Oil.—Oil from silkworm chrysalids has been mentioned in literature several times as a commercial possibility. In the Journal of the Society of Chemical Industry, Vol. XXX, No. 9, page 555, it was stated that in the ten years preceding 1908 there were produced as a by-product of the silk industry in Italy alone, 32,000,000 pounds of the chrysalids, which were practically all used for fertilizing purposes. As they contain about 20 per cent. of fixed oil obtainable by expression or the use of solvents and as the residue after the extraction of the oil would possess a manurial value equal to or greater than the original material, the probability of such an oil becoming an article of commerce is clearly evident.

The sample of silkworm oil in my possession has a brownish-yellow color and a somewhat disagreeable odor. It has a specific gravity of 0.9221 at 15° C., an acid number of 17.76, a saponification number of 202.46 and an iodine value of 142.2. The refraction figure on the Zeiss butyro-refractometer was 70° at 25° C.

Tea Seed Oil.—Tea seed oil, as produced and used for edible and manufacturing purposes in Japan, is not derived from the *Thea sinensis*, the species of which produces commercial tea leaves, but from *Thea sasanqua*, a plant of totally different character cultivated only for its seeds. This oil, when obtained by expression, contains such notable quantities of saponin as to practically unfit it for edible purposes, though when made by extraction with volatile solvents it is practically free from that irritating substance.

The exact origin or method of preparation of the sample in my possession is

unknown. Its properties are as follows: Specific gravity, 0.9165 at 15° C.; acid number, 1.52; saponification number, 196.55; iodine number, 80.7; butyro-refractometer reading, 62° at 25° C.

Grape Seed Oil.—Grape seed oil has been produced for some time as a by-product of the wine industry in some parts of Europe, but until recently no attempt was made in this country to utilize the seeds. Several years ago the production of this oil was begun in connection with the seeded raisin industry and the output of oil was reported last year to have reached over 300,000 pounds. The sample submitted was a bland, pleasant nutty flavored oil of bright sparkling appearance and showing the following characteristics: Specific gravity, 0.9215 at 15° C.; acid number, 100.10; butyro-refractometer reading, 71° at 25° C.

The foregoing data are submitted as a contribution to the literature of these respective oils.

KEEPING QUALITIES OF SOME U. S. P. VOLUMETRIC SOLUTIONS (CONCLUSIONS)

A. H. CLARK.

At the Los Angeles meeting I commenced the presentation of a series of reports on the keeping quality of certain U. S. P. Volumetric solutions. These solutions have been under observation, in some instances for more than four years, and I wish to present a summary of the work done. In some instances the results are such as would warrant definite conclusions.

TENTH NORMAL SODIUM THIOSULPHATE V. S.

Various schemes for the preparation and preservation of this solution were tried. The solution was made from common crystals and C. P. granular sodium thiosulphate using common hydrant water and distilled water. The solutions were made alkaline by the addition of varying quantities of sodium hydroxide. "Preservatives" were added in the form of thymol, resorcinol, formaldehyde, etc. The solutions were preserved in transparent bottles, amber bottles, cork stoppered or glass stoppered bottles, protected from the light, and exposed to the light. In every instance deterioration was shown in a comparatively short time.

Summary—Solutions made from C. P. thiosulphate and distilled water kept as well as any. Protection from light and the addition of alkali seem to retard the decomposition slightly but do not prevent it. So far as the result of these experiments go it is not safe to use a tenth normal sodium thiosulphate V. S. that is more than a month old, no matter how prepared and stored, without re-standardization.

TENTH NORMAL POTASSIUM PERMANGANATE V. S.

Solution No. 1—This solution was standardized on April 5, 1908, and had a

factor of 1.0433. August 3, 1911, three years and four months later the factor is the same.

Summary—Permanganate solutions keep much better than is popularly believed. If time is allowed for the initial decomposition, if any, to take place, the solution keeps at least three years.

TENTH NORMAL BROMINE V. S.

Solution No. 5—This solution was standardized May 20, 1908, and had a factor of 1.0144. August 3, 1911, three years and two months later the factor is the same.

Summary—The work on this solution, as well as on several others, leads to the conclusion that tenth normal bromine V. S. of the U. S. P. will retain its strength for at least three years under ordinary conditions.

TENTH NORMAL IODINE V. S.

Solution No. 2—This solution was standardized May 8, 1908 and had a factor of 0.9541. There was loss in strength during the first few months but for fourteen months it remained of nearly constant strength. August 3, 1911, the factor is 0.9200.

Summary—Tenth Normal Iodine V. S., U. S. P., deteriorates rapidly when freshly made and even after some time it gradually loses strength. It should be standardized frequently for the first few weeks and if kept longer than a month restandardized every month or so.

TENTH NORMAL POTASSIUM SULPHIOCYANIDE V. S.

Solution No. 1—This solution was standardized October 20, 1906, and had a factor of 1.0636. August 3, 1911, four years and ten months later the factor is the same.

Summary—The work on this solution as well on several others lead to the conclusion that this solution keeps indefinitely.

TENTH NORMAL SILVER NITRATE V. S.

Solution No. . .—This solution was standardized December 16, 1909, and had a factor of 1.0823. August 3, 1911, two years and eight months later, the factor is the same.

Summary—This solution retains its titer much better than is popularly believed, and if prepared and preserved in the manner described will keep more than two years.

PHARMACOPOEIAL AND COMMERCIAL ACONITE

WILLIAM MANSFIELD.

Various species of aconite have been used from ancient times, first for criminal purposes and in latter times for their medicinal value. The United States and British pharmacopœias recognize only the tuberous root of *aconitum napellus*, yet the requirements of the two pharmacopœias are quite different. There is no doubt about the kind of tuberous root official in the British Pharmacopœia as it states clearly that aconite must be grown in England and that the tuber must be collected in autumn and have an undeveloped flower bud. This means that it is the tuber separated from the tuber bearing the flower cluster at the close of the flowering season. The United States Pharmacopœia states that aconite is the dried tuberous root of *aconitum napellus* collected in autumn. In the description it says: "Slenderly conical, 4 to 10 cm. long, 10 to 20 mm. thick at the crown; occasionally split;" etc.; no mention being made of an undeveloped bud or a hollow stem base; so that apparently one may take his choice of a tuber with an undeveloped flower bud, which is a plump starchy tuber, or a tuber which is shriveled and heavily wrinkled, containing little starch and with a sunken stem base, that is, if the stem were cut on a level with the tuber.

Let us now consider the aconite of commerce. A very small percentage of commercial aconite consists of a starchy tuber with an undeveloped flower bud. These occur usually attached to the mother tubers. The tuber with the flower stem removed to the level of the tuber is not usual. The usual type of aconite of commerce is an aconite tuber which bore the flower cluster and with portions of the flowering stem, varying from $\frac{1}{4}$ to 3 inches in length. The United States Pharmacopœia does not allow any stem to be present, yet it is practically impossible to find a sample of aconite in the market without stems. This means that the average sample of aconite does not meet the requirements of the United States Pharmacopœia. Fortunately we have a chemical check on aconite, and if it yields 0.5 per cent of aconitine upon assay, it will meet the official requirements chemically, if not botanically.

In order to see if the starchy tuber contained as much aconitine as the non-starchy tuber, assays were made of the tubers occurring in pairs after being separated and reduced to a number forty powder. The result of the analysis showed the non-starchy tuberous root to be richer in aconitine than the starchy tuberous root. While the evidence is not conclusive it tends to show the comparative amounts of the active constituents present in the starchy and non-starchy tuberous root. Economically only the tuber which bore the flower stem should be used. The separated daughter tuber may be planted to produce the flower cluster and a daughter tuber which at the close of its flowering period may be collected for market. It interested me to note that through the short rhizome which connects the two tuberous roots, two vascular strands pass, each with a distinct endodermis. If observed closely, many of the specimens will show where this rhizome has been cut across separating the two tuberous roots and showing the two vascular strands.

Briefly stated, there are five types of *aconitum napellus* on the market: first,

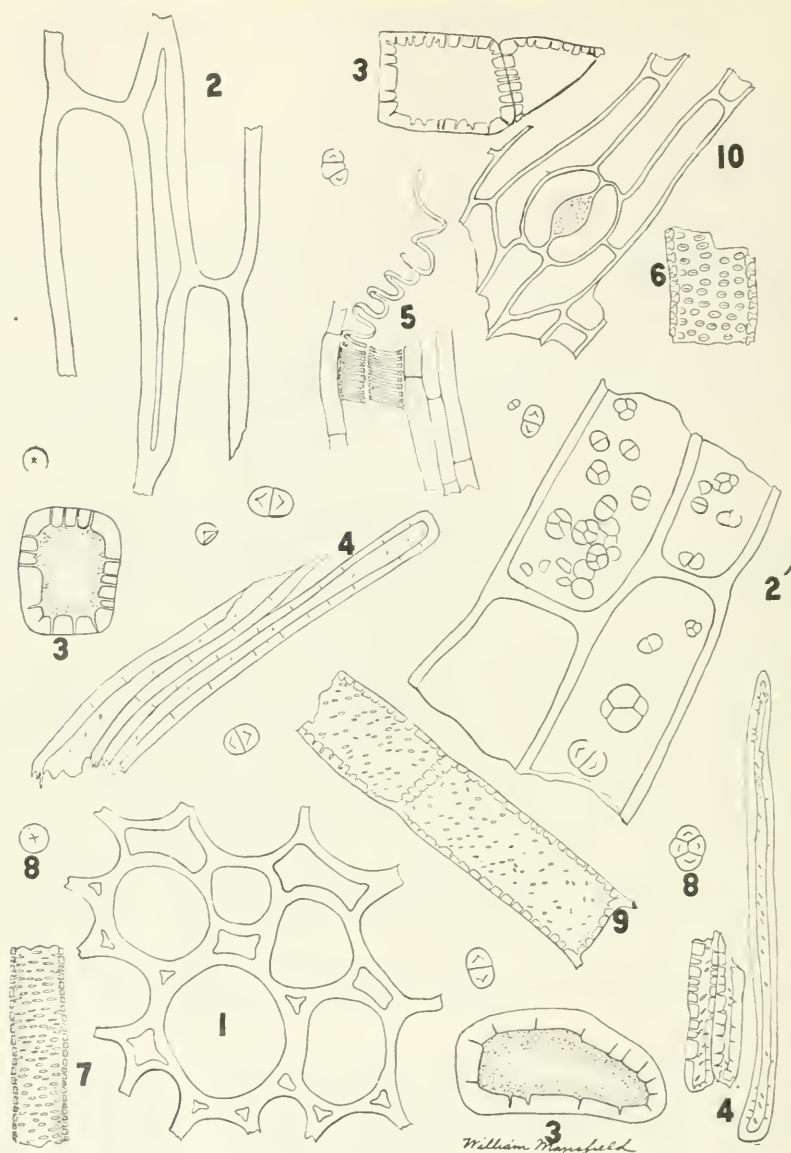


Figure 1.

(Powdered Aconite Stems.)

1. Transverse parenchyma with intercellular spaces. 2. Longitudinal parenchyma with intercellular space. 2'. Longitudinal parenchyma with starch grains. 3. Stone cells (often with dark brown contents). 4. Fibers. 5. Conducting cells with spiral thickening and xylem parenchyma. 6. Part of a pitted vessel with bordered pores. 7. Reticulated conducting cells. 8. Starch, single and compound, scattered throughout the field. 9. Pith parenchyma with porous walls. 10. Stomata, guard cells and surrounding cells of the epidermis.

starchy aconite with an undeveloped terminal flower bud; second, non-starchy aconite with a hollow stem base; third, non-starchy aconite with stem base attached (usual type); fourth, aconite in pairs, the non-starchy tuber with a hollow stem base or a portion of the stem, together with a starchy tuber having an undeveloped flower bud; and fifth, combinations of the above four types.

If the non-starchy tuber only be collected there would be insured a constant supply. There is no question but that the tuber bearing flower cluster will, when freed from any portion of the stem, meet the official requirements. Specimen number one illustrates such a sample and assays 0.6 per cent. of aconitine. At any rate let the next United States Pharmacopœia state whether the tuberous root with an undeveloped flower bud, or the tuberous root which bore the flower cluster shall be used; and also what length of stem base, if any, will be allowed.

POWDERED ACONITUM NAPELLUS.

Powdered aconite stems exhibit many striking and characteristic cells. The epidermal cells occur usually as opaque or translucent reddish-brown fragments. It sometimes happens that the cell wall is broken and the contents forced out; it is then possible to see the outline of the epidermal cells and the stoma. The guard cells are clear and are found on a level with the surrounding cells (10). The transverse parenchyma (1) has about the same appearance in the powder that it has in the cross section. The longitudinal parenchyma with starch (2) is more abundant in a number eighty powder. Number 2' is longitudinal parenchyma with an intercellular space, but free from starch. The stone cells (3) vary in form and size and the walls and cell contents are often reddish-brown or, if the walls are whitish, the contents will be reddish-brown. The fibers (4) vary in length and diameter, the walls have simple pores and the one end is often square or blunt. The simplest conducting cells have spiral thickening of the walls, and this is often seen detached in the form of a true spiral (5). Pitted cells with bordered pores (6) and reticulate conducting cells (7) are found. Scattered throughout the field are found single rounded starch grains (8), with cleft hilum, two-compound grains with a V-shaped hilum, and compound grains with an indistinct hilum. The pith parenchyma cells (9) when seen in longitudinal view have numerous pores. The



Figure 2.

Cross Section of Aconite Stem.

1. Epidermal cells with reddish-brown cell contents. 2. Cortical parenchyma with intercellular spaces. 3. Stone cells. 4. Fibers. 5. Sieve and surrounding cells. 6. Ducts and tracheids. 7. Xylem parenchyma. 8. Starch grains. 9. Pith parenchyma. 10. Intercellular space.

presence of aconite stems in powdered aconite is clearly shown by the fibers (4), by the thicker-walled parenchyma cells (2), by the epidermis with stoma (10), and by fewer stone cells. The fibers can also be determined chemically by an estimation of the crude fiber.

STRUCTURE OF THE CROSS SECTION OF ACONITUM NAPELLUS STEM.

In the cross section of the larger stem bases of aconitum napellus, there are fifty or more bundles. The fibers form nearly a complete ring with an arch of fibers just outward from each phloem portion of the bundle and extending inward often completely enclosing the xylem and forming a closed collateral bundle. This is true only of the older formed bundles. As the stem increases in diameter new bundles are formed which at first have fibers surrounding only the phloem portion of the bundle and then only a few cells wide. The cross section exhibits the following structure: The epidermal cells (1) are radially elongated, thin-walled cells with reddish-brown contents; the cortical parenchyma cells (2) are thick-walled, nearly circular in outline, with prominent, mostly triangular intercellular spaces, becoming smaller and smaller as we near the fibrous sheath. Among the cortical parenchyma cells are found large thin-walled stone cells (3). Frequently not more than one is found between the epidermis and the fibrous layer, while in other sections several stone cells occur. The fibers (4) have a rounded outline, the walls are yellowish-white, thick, with small cell cavity and show clearly the line of separation of the fibers, which appear as a dark line between the cells. The fibers (8) inward from the xylem are thinner-walled than those surrounding the phloem. The cells of the phloem (5) are thin-walled and irregular in outline, no sharp distinction being seen between true sieve cells and surrounding cells. In some of the bundles the cambium cells are quite distinct; while in other bundles no characteristic cambium was observed. The conducting cells of the xylem (6) vary greatly in diameter and are surrounded by parenchyma cells (7). The pith parenchyma cells (9) are thick-walled, nearly circular in outline and filled with starch grains. The intercellular spaces (10) are larger than in the cortex and they are quite frequently quadrangular or pentangular.

THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Every progressive wide-awake pharmacist in the United States is or should be a member of the American Pharmaceutical Association. This organization stands for that which is highest and best in American pharmacy. It has wielded and is wielding a powerful influence in the development of medical practice. It is endeavoring to so raise the status of pharmacy as to place it on an unquestioned professional basis. It would be a long story to relate all that this body stands for and does in pharmacy. At its head are the American leaders in pharmacy.

If you are interested in the improvement, the development of your calling, become a member, remain a member, attend the annual meetings (if possible) and become informed on what is happening in the front ranks of American pharmacy. Send for membership application blanks to Professor W. B. Day, 74 East Twelfth Street, Chicago. Become a member as soon as possible and be at the meeting at Denver, Colorado, the week of August 19, 1912.—*Pacific Pharmacist*.

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

ARE THE PRESENT DAY NEEDS OF THE PRACTICAL PHARMACIST MET BY THE PHARMACEUTICAL CURRICULUM?

L. E. SAYRE.

An individual engaged in the manufacture and vending of drugs can only serve efficiently the social body of which he is an organic part by reason of careful training to such service. If, like the poet, the pharmacist needs to be born to his task, it is equally requisite that his innate capacities be thoroughly and systematically perfected. The nature of his profession is such that failure to perform his duty involves something more than the mere sacrifice of his own success; it involves injury to the well-being and health or after life of those whom he is intended to serve.

Yet, while it is a matter of the utmost importance that the pharmacist be fully equipped for his vocation, there is another consideration calling for almost equal emphasis; namely, that the pharmaceutical student be not obliged to spend his time in any activity which does not really prepare, or in any activity offering really valuable preparation, longer than necessary. While he is learning, he is on expense; and he feels that his time should be worth something to him. Moreover, those branches which have little bearing on his future work may have a tendency to obscure those possessing real value. Hence the importance of securing a pharmaceutical curriculum that, while it meets the present day needs of the practical pharmacist, does so at a minimum expenditure of time and money.

Three questions at once present themselves for consideration. Are we going to plan the curriculum of the pharmaceutical student with reference to the progress we would like to see his profession make, or shall we base it upon the need of the public for protection against incompetent servants; or shall we strive merely to make of him an accurate and reliable business man?

The importance of providing for the advancement of pharmacy cannot be overestimated. Lack of attention to this matter on the part of those most deeply concerned has already permitted a lamentable decline in the profession. The pharmacy of today offers greater complications than that of fifty years ago, since it takes more of a chemist to detect error than to manufacture; and inadequate preparation for the work invites imposition. Moreover, as methods of drugless healing, legitimate and otherwise, flourish, the dependence of therapy upon pharmacy diminishes; hence the druggist whose early training has given him a mental equipment of the mere facts of his trade must supplement his stock of goods with notions and stationery in order to make a living. Yet the retrogression we have

seen will be exceeded by that we may see if Schools of Pharmacy do not arouse themselves to the needs of the future. When graduation from a pharmaceutical course marks a real commencement in a career progressive enough to keep pace with the standard set by the other professions, the pharmacist does not enter avenues of trade, but instead takes urinalysis, microscopy, and other laboratory burdens off the shoulders of the physician. Thus, and thus only, will pharmacy become in the fullest measure what it has been and should be—an honored and honorable profession.

Many of the best schools of pharmacy already recognize this need. Courses are gradually lengthening out so as to include more of both basic and special sciences; and the training is in all ways more thorough. Looking over the curriculum of the various schools, we find prominent a tendency toward building up courses of study with direct reference to the advancement of pharmacy as a profession.

Yet there is danger in too extreme an adherence to this point of view. There is very possibly a tendency on the part of some of the best colleges to become too scientific. We must not with gazing at stars lose our consciousness of present day needs. The public demands efficient service *now*; and the facility with which this demand is met determines broadly the whole welfare of the future. Thus preparation for public service is in the highest degree important; and between it and preparation for scientific progress there must be active coordination. We can dispense with neither.

The public is peculiarly at the mercy of the decisions of the pharmacist, be he wise or unwise. The degree of responsibility for common welfare which the pharmacist must carry is correspondingly great; and for such responsibility, the curriculum of training schools should be designed to fit him. Heedlessness in mere details may be fraught with grave consequences. I quote from a letter by Wilhelm Bodemann to the *Pacific Pharmacist* regarding an experience with graduates of pharmaceutical schools:

"Three happened to come at the same time, just as I took a prescription calling for ten grammes chloral hydrate in two ounces of vehicle. Dose, a teaspoonful. I asked them to put it up for me. The one with the blue ribbon parchment asked me if I had a solution of bichloride of mercury for dispensing purposes—that's the way he was going to put this recipe calling for chloral hydrate. I asked the three of them how much of a dose they would have of the chloral hydrate. They all *guessed* it wrong; none could *figure* it."

We scarcely need to comment on the inability of these young men, from whatever schools they were graduated, to protect the public from its own ignorances. The curricula of pharmaceutical schools should be so planned as to admit of an abundance of actual practical experience in making up prescriptions.

Thus we note the importance of both of the first two questions in making up a pharmaceutical curriculum. The third remains to be considered. Should business training be included in the course of study? Unquestionably, since modern practical pharmacists are more often concerned with the purchasing and vending of pharmaceutical supplies than with manufacturing them, students must be in some wise prepared for this phase of their work. Business training is a factor

important enough to make or mar future success. To give it precedence over scientific training would be a grave mistake; yet, if Schools of Pharmacy are to graduate students really prepared to enter upon their vocation, there must be included in the course of study something of practical business training.

While this paper was under contemplation, the author sent out a number of circular letters to members of the laity and heads of Schools of Pharmacy inviting answers, with suggestions, to the three questions we have been considering; namely: Shall the present needs of pharmaceutical education be viewed from the standpoint of pharmaceutical science and progress; or, shall it be viewed from the standpoint of the public which is to be protected from incompetency; or, shall we admit the business point of view? The responses were enthusiastic and to the point. One writer says:

"The present needs of pharmaceutical education should be viewed, according to my judgment, from both the standpoints covered by your first and second questions, with the emphasis decidedly upon the first."

Another writes:

"I fail to see how a comprehensive course of pharmaceutical education can or ought to be viewed other than from the standpoint of pharmaceutical science and progress and at the same time also from the standpoint of the public, aiming to protect it against incompetency. I realize the difficulty of a nice balance of both of these requirements. Both are essential, yet I sometimes feel that the tendency of the pharmaceutical pedagogues is toward the idealistic rather than the practical. While these high ideals as to the necessity of pharmaceutical progress along the lines of the sciences, is to be encouraged, I have seen a great deal that makes me believe that much is so top-heavy that it becomes impractical, and fails from its impracticability to fit the student to properly discharge his duty as a protector of the public."

The further need of business training was touched by a number of these correspondents. One of them says:

"Pharmaceutical education cannot ignore the proper business development of the student, so as to equip him with the knowledge of business methods that will aid him in the earning of a livelihood. The sole aim of pharmaceutical education should never to be made the teaching of business methods or the development of trade traits; yet, a proper acquaintance with the methods of business is certainly essential."

Another writes:

"It seems to me that if practicing pharmacists cannot supply in their own establishments the business training that they require their clerks to possess, the latter should be required to attend a business college. Yet even upon completion of a business course the young men could not possibly be qualified in every sense to carry on the work of the average drug store without considerable practical experience in the drug store and drug store laboratory. The pharmacists who demand fully trained assistants without in any way assisting in their training are, in my opinion, unreasonable."

In addition to the latter citation we need only reiterate that business training should be an addition to, not a subtraction from the course. The best interests of

the public will be served when our professional pharmacist has business ability enough to make the profession sufficiently lucrative. And, too, the profession will be best served as it will attract virile and progressive men. Indeed, the need of lengthening the course for a number of other reasons should be recognized. Even the two-year man can scarcely do justice to the fundamentals and still have time to master urine and stomach analyses, and other subjects looking toward that advancement of the profession that we deem desirable. Ample time should be given to chemical analysis, research, and theoretical and practical pharmacy.

So far, we have been considering only those pharmaceutical schools whose curricula are shaped by necessities of the present and ideals for the future. We, unfortunately, have in large numbers, however, a class of schools which exist solely for the purpose of preying upon a gullible public. In six months, or even less time, they graduate students with just a sufficient smattering of the essentials to enable them to get past pharmaceutical boards too much interested in the lucrative side of pharmacy. The information possessed by such candidates is not thoroughly enough grounded to enable them to adequately or safely serve the public. Yet they are permitted to compete with legitimate men to the injury of the profession. I have in mind two such instances. In the one case a young man too poor to stay in school over twenty weeks "passed the board." He returned in a year as proprietor of two stores, having been helped to them by a capitalist relative. The father of the other bought him a drug store after the completion of an *eight weeks* course. He wanted a correspondence course from us to help over his difficulties. That such men become competitors is not the most serious consideration, is evident.

Even if such courses could really give the fundamental knowledge requisite in any adequate way, they must absolutely lack provision for the practical experience in handling drugs that makes an essential part of the training of a good pharmacist. The student has no time to acquire familiarity with the very tools of his trade.

The better class of pharmacists owe it both to themselves and to the public to resist the encroachments of this class of schools and their graduates in every possible way. Something can be effected through legislation. Pharmaceutical requirements may be raised and schools of pharmacy thus obliged to lengthen their period of training. As an example of what has been accomplished in the West we may cite North Dakota, where the applicant for registration is required to have been in attendance at a school of pharmacy at least one year and to have had three years' experience in a drug store in 1914, after 1915 not less than two years' attendance at a college and two years' apprenticeship in a drug store.

Notwithstanding these exceptions, however, in looking over the curricula of the syllabus and the various accredited schools, we are inclined to believe that the needs of the practical pharmacists of today are quite fully met; and taking into consideration the demand of the public for protection, on the one hand, and on the other, advancement of the profession from both a practical and a scientific viewpoint, we feel that the present courses as outlined by various teaching colleges are not too extensive and make no greater demands of the student in his preparation for future service than is at the present time required of the practical pharmacist, and that, when diplomacy has successfully paved the way through the

mire of financial and other considerations, the customary over-burdened two-year course should be extended by at least one year.

It is a matter of encouragement to educators that Boards of Pharmacy and State Associations are taking more interest in pharmaceutical curricula. The graduation prerequisite question has been taken up in at least three legislatures—California, Illinois and Washington. While their legislatures have failed to give adequate support to such a measure, the failure has not been due to lack of support of earnest, thoughtful and, I may say, progressive pharmacists. In the State of Washington, we are told, the Board of Pharmacy was in favor of graduation prerequisite requirement but the Association was lukewarm. When State Associations and Boards of Pharmacy work together with the teaching institutions insisting upon a properly balanced curriculum in our colleges, keeping in mind the three elements referred to in this paper, the present day needs of pharmacy are more surely and satisfactorily to be met, than they can possibly be when these factors of education are for any reason not properly co-operative and co-related.

THE MAKERS OF MEDICINES.

The revolution which has taken place in the making of medicines during the past half century was made most manifest by a gathering held at the Waldorf-Astoria Hotel on February 6 and 7. Here were gathered some forty makers of medicine, representing a capital of probably fifty million dollars, whose annual output probably approximates seventy-five million dollars a year in value. Never before in the history of medicine has there been such an aggregation of vast interests affecting the makers of medicines gathered in one small room. Fifty years ago such a gathering would have been impossible. Then the individual pharmacist made his own fluidextracts, his tinctures, his pills, and even his plasters. Then there were no biological products used in medicine except vaccine virus. Serums were undreamt of. Galenical preparations made direct from the drug by the individual retailer had not been replaced to the extent they now have been by alkaloids and active principles extracted by chemical manufacturers. Then every pharmacist was a manufacturer, even if he did no more than make tinctures and pills. Now the pneumatic pill machine makes and coats with gelatin a million pills in less time than it took the oldtime pharmacist to make a hundred. And it does the work on the whole better. The workman who makes quinine pills in the modern laboratory does nothing else. He becomes a highly specialized expert. The product is uniform and niceties of composition and manipulation are worked out in a way which could only be done under the modern method of specialization.

—*American Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

CULTIVATION OF ECHINACEA AND BELLADONNA.*

L. E. SAYRE.

Some two or three years ago my attention was called to the subject of the cultivation of medicinal plants in the United States. I have taken a good deal of interest in that particular enterprise. I shall confine myself almost entirely to a few statements with regard to Belladonna and say nothing of the most excellent work in medicinal plant culture in different parts of the country, and especially under the direction of the United States Board of Agriculture. It seems to me that we must, in this country, in a very short time, consider this question of the cultivation of medicinal plants very seriously. I wrote to the Department of Agriculture at Washington with regard to the question of one of the plants that is very abundant, or used to be very abundant, in the State of Kansas. The plant I refer to is Echinacea, which, no doubt, you have learned the American Medical Association has "turned down" and yet, notwithstanding, the demand for this by the practitioner today is to the extent of about 200,000 pounds annually. *Echinacea Angustifolia* grows very abundantly in Rooks county, Kansas. I was instrumental in directing Doctor Lloyd and other manufacturers to a botanist in that section and started the enterprise of its collection.

I would like to say in reply to the report made by the American Medical Association with regard to this plant that some years ago while attending a county medical society in Kansas, one of its members asked publicly if anyone knew about the drug known as Echinacea. I said I had some knowledge of it and gave something of its history.

I was asked if I knew anything about the therapeutic qualities. As a pharmacist I could not make any statement as to its therapeutic action, but stated that physicians were reporting good results from its use in cases of eczema and other like diseases. After the close of that meeting, one of the members of the society came to me and said: "Professor, if you want to know something about the therapeutic action of Echinacea I would like for you to go with me over my round in the treatment of cases where I apply it. I would like to show you something of its action." One day he called to take me out as promised. He said: "I am treating this case entirely with Echinacea and I want you to see it." The action of the drug seemed to be very helpful indeed. I said to the doctor after he had carried this patient (afflicted with carbuncle) through successfully that I really felt one must admit there was some value to Echinacea.

Echinacea has been going out of the State of Kansas to the extent of about

*Delivered orally and corrected by the author from the stenographer's notes.

200,000 pounds a year. This suggested to my mind that in the course of time the plant would be extinct and it would be necessary for us shortly to adopt some measure by which the plant could be cultivated, otherwise it might be entirely exhausted. I wrote to the Department at Washington and asked them to study up the cultivation of the plant and give us some information regarding this as someone of the farmers might be interested in cultivating it. The Bureau of agriculture has done some work upon this and their reports as to its cultivation are very satisfactory indeed.

The point I want to speak of particularly is in regard to the cultivation of Belladonna leaf. My attention was called to this as a member of the Revision Committee of the United States Pharmacopœia. Dr. Albert Schneider, of California, has been very much interested in the cultivation of this plant and a year or so ago he asked me as a member of the Committee whether I would not take up the investigation of Belladonna with a view to assisting the people of this country in cultivating the plant itself. He remarked in his letter: "Unless the United States Pharmacopœia can introduce into the Pharmacopœia the term 'Herba Belladonna' instead of 'Belladonna Folia' we cannot possibly compete with the British leaf or European leaf." He says: "In the various analyses I have made of the stems and of the leaf of Belladonna, I find that the alkaloidal assay of the mixture is above that of the United States Pharmacopœia."

Before I took up this matter for investigation I wrote to Parke, Davis & Company and others who are familiar with this production in California and asked them for their results. Then, I had sent to me at the laboratory the plant as cultivated there. Analyzing the plant for its alkaloidal constituency, and doing this with the leaves separate, and then with the leaves and stems combined. The question in our minds was, Would it be possible and safe for us to introduce into the Pharmacopœia "Herba Belladonna," thereby including the leaf and the stems?

I wish to acknowledge my indebtedness to Professor Havenhill for the great assistance rendered by him in these analyses. The result in our laboratory shows that the stems and leaves combined, of the American plant, yield an alkaloidal strength greater than the requirements of the United States Pharmacopœia. So I am going to recommend to this Committee that Herba Belladonna shall be introduced into the United States Pharmacopœia. What effect that motion will have, I do not know. No positive conclusion has as yet been reached.

A letter recently received from Mr. Schneider states: "For this year the herb from five acres of Belladonna will be about two and one-half tons. Under favorable cultural conditions the yield will be, in all probability, three and one-half tons, but owing to some difficulties I have not been able to have the field operations attended to as they should have been."

This is the gist of the letter. He writes me quite a long letter and states something interesting with regard to the analyses. He will send me in a short time from this year's yield an average specimen of Belladonna Herb from this two and a half tons, so that the analysis of the whole herb will be made and the report will be given to the Sub-Committee. I trust that thus home cultivation of medicinal plants will be encouraged by the pharmacists at large, by the public and by the Committee of Revision of the United States Pharmacopœia.

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

THE COST OF DOING BUSINESS.

E. FULLERTON COOK.

It will probably not be out of place in such a symposium as has here been planned to again bring forward the all important question of cost or expense of doing business.

While there is an increasing recognition by druggists of the necessity for knowing absolute cost, that a profit-making selling price may be determined, yet there is room for renewed emphasis and more discussion under such conditions as these. The golden key which unlocks with certainty the storehouse of profit in modern business is intelligent and scientific management.

Much has been written and preached about advertising, including store arrangement and window displays; many new plans for buying goods have been offered and put into successful operations, and these are of great importance, but they are only part of a manager's problem. Before him stands the whole ultimate question of profit and, to conduct the business so that all divergent forces are harmonized and this result accomplished, must be his constant endeavor.

The right proportion of first cost, expense per cent., and profit per cent., in the fixing of the selling price, scientifically applied, assures this result, and is the real question for adjustment.

FIRST COST.—No attempt will be made here to discuss the buying of goods however important that may be as a factor in profits. Needless to say the cheaper the price for which goods can be bought by the dealer, quality being equal, the more likelihood there is of a profit-making and sale-inviting price at retail.

Cash Discounts.—In this connection cash discounts may not be overlooked. A few years ago they were ignored by the druggists generally, but the testimony of many today, who are successfully solving the bigger problem of profits, has proved beyond doubt its advantages. It means best buying prices, good service, independence, profits and, most important, freedom from the harassing worry attending unpaid bills and accumulating debt.

EXPENSES.—Expenses, big and little, should be under absolute control. They should be systematized, classified and, so far as possible, anticipated. At the beginning of the year, when percentages are being figured for the fixing of a profit-producing selling price, all expenses not fixed, should be estimated from previous experience, appropriations made and accounts opened, care being taken to see that the appropriation is not exceeded if the expected profit is to result.

FIXED EXPENSES.—There are certain fixed expenses in all businesses. These should be carefully determined. The following are the more important:

Rent.—This must be charged if the property is owned by the store proprietor, as conscientiously as if paid to a landlord. A rental equal to that obtainable in the neighborhood for similar property will be a satisfactory guide to the amount to charge.

Clerk Hire.—This important item requires constant attention; certain stimulating expedients often make it possible to reduce this expense through the securing of better service from a less number of assistants. This involves the much talked of science of efficiency.

Insurance.—Few business men can afford to ignore insurance. It is a necessary and legitimate expense and should at least include fire and indemnity insurance, the latter being exceedingly valuable since it affords protection in cases of error, or a claim of error, with attempted blackmail.

Taxes and Licenses.—These must be included with other expenses.

Telephone.—An expense of every modern business.

The preceding are the more common fixed expenses, but there are others not always recognized, as:

Proprietor's Salary.—A stated amount should be charged regularly as salary for the proprietor if he is giving his time to the business. If he is not devoting his energies to the work of the store he is certainly paying someone else to do so and it is but fair that he who does assume the responsibility, work, worry and risk of loss, should be the best paid man connected with the business. He should not wait for expected profits to give him living expenses.

Interest on Investment.—This is another item of expense which is often ignored, giving false ideas of profit. Of course if the store is being conducted with borrowed capital the interest is charged to expenses, but it is equally legitimate and necessary to charge interest for investment when the capital is supplied by the proprietor.

FLUCTUATING EXPENSES.—Besides these fixed charges there are many others that arise from time to time, some seemingly trivial, but all worthy of careful accounting and watching. In fact where business is planned on a low percentage of profit these incidental expenses may unwittingly increase until they have entirely swept away gain which might have been expected. It is recommended, as has already been suggested, that appropriations be made at the beginning of the year for such expenses, and that these expenses then be regulated so that the year's close will not find the appropriation exceeded.

There will be many leaks stopped if all know that a strict accounting is being kept of every cent expended. Items belonging to this class are light, heat, stationery, labels, stamps, delivery, freight, drayage, advertising, donations, shortage, breakage, failure to charge, bad accounts, etc. The last four, shortage, breakage, failure to charge and bad accounts, are difficult to estimate, but cannot be ignored; careful management, however, will reduce them to a minimum.

The importance of guarding against unnecessary expense is emphasized by a moment's study of profit. Suppose the sale of \$100 worth of goods figures out about as follows (and this would be considered an unusually good average for the

retail business): First cost, 70 per cent.; expense of selling, 20 per cent.; net profit, 10 per cent. It can readily be seen that \$5 saved in expenses is equivalent to the profit on \$50 worth of goods sold over the counter and, if the profit per cent. is only 5 per cent., the saving of \$5 is equal to the profit on \$100 worth of goods.

Such a viewpoint puts a new light on expenses and every clerk should be made to see expenses in this light.

DEPRECIATION.—Depreciation is another item which must be counted in the year's expense. Usually 5 per cent. is counted off the value of fixtures and about 10 per cent. from the soda water apparatus, while it is often necessary to allow for depreciation in sundries. This is based upon the likelihood of entire replacement of fixtures within twenty years and the buying of a new soda fountain within ten years. It is practically creating a sinking fund; a sound business principal.

PROFIT.—Knowing the first cost of goods sold throughout the year and the expense incurred from all sources to place such goods in the customer's hands, it is not difficult to determine the percentage ratio between cost and expense. Unless there has been added to the first cost at least a percentage equal to the percentage of expense, in fixing the selling price, there has been a positive loss for each sale. But a business man at the end of the year cannot be satisfied with only covering expenses, he must have made a profit. He must add to his first cost the percentage of estimated expense and then the percentage of profit he desires, and this will give a properly determined selling price and insure a legitimate profit. I say a legitimate profit, and a man in business is justified in expecting a fair profit, for it is but a sinking fund upon his own life which will probably become incapacitated, on the average, in from twenty to thirty years.

A profit is really figuring depreciation on life, making it possible to retire with some accumulated reserve, after a reasonable number of years of activity.

INVENTORY.—This, however laborious it may seem, is necessary for a right adjustment of the various interests of a business. The drug business has been slow to recognize this, but right business methods are being introduced in many stores and its worth is acknowledged. Not only does it insure a correct statement of the condition, but it keeps the stock from stagnating, helping to prevent accumulations which are often deceptively figured among the assets.

FIGURING PROFIT.—The important factors for determining profit are the inventory at the close of the preceding year, the current inventory, the first cost of goods bought during the year and the total expenses of conducting business during the same period. With these factors determined the following simple rule will show gross profit or net profit:

Rule.—First deduct from the year's purchases any increase found in the stock, or add to the year's purchases any decrease noted by comparing the inventories, thus determining the cost of goods actually sold. Then,

The gross profit is obtained by subtracting the cost from the year's sales.

The net profit is obtained by subtracting the expenses of the year from the gross profit. It may be graphically shown as follows:

Let S = Sales of year; C = Cost of goods sold; E = Expense to do business.

Then $S - C$ = Gross profits, and $S - (C + E)$ = Net profits.

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

RECOLLECTIONS OF MICHAEL CARTEIGHE.

JOSEPH P. REMINGTON.

After the last page of the life-book of a man is closed, it is profitable for his contemporaries to review the chief facts of his life, and to place on record a just and fair estimate of his services to the world. The subject of this sketch was a noted man with a marked personality, and would never be overlooked in any assembly.

It was the writer's privilege to know Michael Carteighe. The few occasions when it was possible to meet him personally must not be considered as representing the opportunities of judging of his character, temperament or achievements. Regarding his personality, the first impression was that of an intense, brainy, successful man, who made it his business in life to first settle upon a course of action, and then to go swiftly forward, employing every agency which he thought necessary to win success. Resourcefulness was "writ large" among his attainments.

In studying his life, one is amazed at the methods he employed to accomplish his purposes. Great Britain has cause for thankfulness that Michael Carteighe's heart and soul were pure and undefiled. If it had been otherwise, Carteighe's power for harm would have been tremendous. He overcame opposition by the sheer power of his personality and intellect, and the combination of qualities which he swiftly marshalled to his aid. Those who worked with him could scarcely tell in advance what plan of action he would use, and they never could tell when he would change his method of attack or defense. He reminded the writer of a star fullback in a football match. Given the signal for the run, with the precious pigskin grasped firmly to his breast, he is off like a shot, picking his field, dodging to the right or the left, using the straight arm to ward off the tackling opponent, infallibly choosing his openings, seeming to know by intuition when to pause and when to rush, taking advantage of every misplay of the enemy, and with a vitality outlasting his opponents, there is no halting until the goal posts are reached and the ball planted squarely between.

This first impression was always present in the mind of the writer, but it is manifest that those who knew the early life of Michael Carteighe must have seen him playing a patient waiting role. It must have been a rare treat to see Carteighe in action, in repose, in study, on the mountain-top in Alpine costume, at the Chemists' Ball, in fierce debate at the Society's rooms, at a committee meeting laying out the plan of action, interviewing a prime minister, cajoling a reluctant member, confusing a pedant, scoring a doubter, yielding a non-essential point to his weaker opponent when he knew that he had gained the main contention, or

sometimes deliberately provoking opposition to strengthen the power of his victory which he saw was coming.

Michael had the heart of a lion; and withal it was as tender as a woman's. He was sympathetic in times of distress, gentle when consoling a troubled friend. He had a great gift of intuition, and knew how to push aside trivial matters and reach the core of the situation quickly. Such a man was a born leader among men, even as a youth doing unthinkable things, such as criticising the management of a distinguished Society on the public occasion of his receiving a notable prize for his attainments. Such an act would undoubtedly provoke criticism for its audacity, but it probably represented one of the remarkable methods which Carteighe took to startle people out of ruts, trusting that the manner and merits of his criticism would produce rapid results.

Carteighe never seemed to realize that inherited qualities, environment and dual possession of a brilliant mind and magnificent physique made him what he was; and at times he was intolerant and rode rough shod over his fellows; but it must not be supposed that he was not informed when he made mistakes, and he knew well how to retrieve a blunder. If it were necessary to carry an important point he would not hesitate to affront a contemporary if he thought he could thus bring success to his plans; doubtless there were occasions when he provoked a fight unwisely, due probably to lack of restraint and an overfulness in his heart, arteries, veins and capillaries of rich Irish blood. In considering Michael Carteighe's personality one must be impressed with the fact that he was an Irish Englishman, rather than an English Irishman.

Born in Lancashire, England, his ancestry were from County Cork, Ireland. At an early age he went to London to attend a school at Clapham. He was apprenticed to Mr. C. J. Radermacher, a London chemist, who is still living. He became a demonstrator in Chemistry under Professor Williamson, University College, London. He entered the firm of Dinneford & Company in 1863, in which his brother, John Carteighe, was a partner. In the previous year, Michael Carteighe had entered as a student in the School of Pharmacy of the Pharmaceutical Society of Great Britain, with a record unsurpassed for brilliancy of attainment. In 1864 he was elected Auditor of the Pharmaceutical Society, a connection which lasted forty-six years. In 1866 he was elected a member of the Council and a member of the examiners of the British Pharmaceutical Society. He acted as local Secretary of the British Pharmaceutical Conference in 1874. In 1880-1882 he became Honorary Secretary of the Conference, and its President in 1883. In 1881 he was English Secretary of the Fifth International Pharmaceutical Congress. In 1882 he was elected President of the Pharmaceutical Society of Great Britain, and continued in this office fourteen years.

During this time he was indefatigable in his efforts to remedy the evils which beset the progress of pharmacy; but, like most reformers, he was ahead of his time. In some of his most persistent and heroic efforts he was not always supported by the rank and file. It was ceaseless and persistent work which led to the publication of the British Pharmaceutical Journal Formulary and the Pharmaceutical Codex, in 1907.

Although he had a strongly developed taste for chemical research, and had delivered a number of lectures upon physics, this gifted man turned aside and

chose for his life-work the betterment of pharmacy. An appreciative writer (see *Am. Jour. Phar.*, August, 1910) sums up most admirably Michael's career:

"It was his addresses on pharmaceutical politics by which the greater number of pharmacists will remember him. Some of his most brilliant efforts were made extemporaneously on occasions when no reporters were present to place his utterances on record. In speech he was a model of lucidity; he not only knew his subject thoroughly, but had the gift of presenting essential facts in such a way that his hearers not only understood what he intended, but carried away with them what he intended they should remember. His speeches expounded the policy which he consistently and persistently followed. He ever kept in view the main fact that parliamentary and public recognition can never be accorded to the commercial side of the business of the chemist and druggist, and that protection of the professional side must be won by the exhibition of special fitness in the individuals who claim to work for the public safety. Hence the promotion of sounder education and technical training, the institution of research work, and the perfection of machinery of examination, which must be forever identified with Mr. Carteighe's name. And hence, too, the metamorphosis in the school and its equipment, the foundation of the Research Laboratory, the development of the Journal, the Museum, and the Library, which earned for him the sobriquet of the 'spend-thrift president.' But who shall say that the money was squandered? Surely not his successors, who have been enabled to harvest in many of the fields he has ploughed!"

The American Pharmaceutical Association was indebted to Michael Carteighe, and members who were present in Chicago at the World's Fair meeting, in 1893, will never forget him. He was there in several capacities. At that time he was President of the British Pharmaceutical Conference, our sister organization. He was associated with Sir Richard Webster, now Lord Chief Justice of England, and J. Fletcher Moulton, now Lord Justice, and other distinguished personages. He was given an enthusiastic greeting both in the American Pharmaceutical Association and the Seventh International Pharmaceutical Congress, and he was the bearer of the Hanbury gold medal to our beloved Professor Maisch.

The closing years of his life were marked by many pathetic incidents. He severed his long connection with business in 1907. In 1908, he became totally blind, but he courageously attended to his duties, and never lost his cheerfulness, and displayed at times, amazing energy and intellectual grasp. He was the British lion of Pharmacy, fighting against tremendous odds. He had lost his charming helpmate and loving companion in 1905; the sight of his colleagues and friends was denied him, and he could only recognize them by the inflection of their voices. Though he had scaled Alpine heights, he had now to be led by the hand of a little child. Still that great heart continued to pulse and vibrate with the one thought which dominated his life—service to his fellow man.

The brief introduction which Americans had in 1893, furnished a most transitory glimpse of Michael Carteighe; but it is meet and right that some appreciation of this great man's services should be placed on the official records of the American Pharmaceutical Association. And his life should stimulate us who remain, to inspire our young men, who are coming forward, to devote themselves to such a life in the great cause of unselfish service in bettering the condition of our fellow-craftsmen, and raising the standard of Pharmacy throughout the world.

"A man whose soul is pure and strong, whose sword is bright and keen,

Who knows the splendour of the fight and what its issues mean;

Who never takes one step aside or halts, though hope be dim,

But cleaves a pathway through the strife, and bids men follow him."

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter:

(Third Installment.)

Alkaloids: Method of Volumetric Estimation Prescribed in Pharm. Germ. V.—In a review of the directions of the Pharm. Germ. V for the volumetric estimation of alkaloids, Dr. R. Gaze observes that the shaking out of the original alkaloid solution with hydrochloric acid of ½% is usually not attended with any difficulty. Clarification may be hastened under circumstances by the addition of a little more acid and gentle rotation; or, in obstinate cases, by filtration through a small filter containing a little tuft of cotton. The shaking out with chloroform, however, after rendering the acid extractions alkaline, sometimes occasions considerable trouble. The chloroform separates in minute drops which will not coalesce. In such cases, coalescence may be effected by carefully heating the separatory over a water bath; or, by using at first only a portion of the chloroform (2.5 Cc.) and, after shaking several minutes vigorously, and subsidence of the chloroform in small drops, adding 5 Cc. more of the chloroform and then gently shaking the mixture to and fro, holding the separatory in a horizontal position.—Apoth. Ztg. No. 31, 301.

Quinine: Estimation as Acid Citrate.—The results of the estimation of quinine in organic liquids, such as urine, by direct extraction of the alkaline liquid with ether, are very unreliable, the quinine obtained being contaminated with resinous and coloring matter. To obviate this source of error, Nishi proposed a method in 1909 ("Analyst," 34, 443), by which the quinine, dissolved in ether, is precipitated as acid citrate by the addition of an ethereal solution of citric acid. T. Cockburn and J. W. Black now confirm the accuracy and reliability of this method by a series of estimations carried

out with it, but propose a modification of the method which renders the details of the process described by Nishi less cumbersome. As claimed by Nishi the compound formed is of constant composition, corresponding to an acid citrate having the formula $C_{20}H_{24}N_2O_2 \cdot C_6H_8O_7$, containing theoretically 62.79% of quinine, while in practice an average of 62.95% was obtained by these authors and 62.57% by Nishi. The general characteristics of the acid citrate also corresponds with those given by Nishi. The compound is almost completely insoluble in ether, slightly more soluble in cold water and in alcohol, but readily soluble in hot water. Without going into the details of the method, which may be consulted in the original, it may here be stated that the impure quinine, obtained by the usual shaking out process and completely dried is dissolved in anhydrous ether, precipitated with a specified quantity of saturated ethereal solution of citric acid, allowed to stand 24 hours, the precipitate collected in a filter-tube, washed with specified quantities of ether, and dried to constant weight. The saturated solution of citric acid is obtained by dissolving citric acid, previously dried *in vacuo*, in anhydrous ether.—Pharm. Journ. and Pharmacist, Sept. 16, 1911. 380-381.

Arsenic: Possible Fallacy of Fleitmann's Test.—In a recent case of dietetic arsenical poisoning, it was found expedient to examine the urine of the affected person for traces of arsenic some six weeks after the poison had been taken, the medical man who undertook the examination, employing the well-known Fleitmann's test, and finding by this test that arsenic was still being excreted. Walter J. Dilling, doubting the probability of arsenic being excreted in the urine six weeks after the ingestion of a single subtoxic dose, performed control tests by means of Reinsch's and Marsh's methods. These proved completely negative, while Fleitmann's reaction appeared to indicate the presence of arsenic in this particular sample of urine, and also in a sample of normal urine. This reaction

depends on the reduction of silver nitrate by means of arsenuretted hydrogen, generated from the material under examination, to metallic silver, causing a purplish-black spot to appear on paper impregnated with the reagent. On looking into the matter to discover the cause of this reaction from urine free from arsenic, the author found that uric acid was the principal substance responsible for the result, but that this reduction will only occur if steam issuing from the mouth of the tube containing the reacting material comes in direct contact with the moistened silver-nitrate paper placed over it. If the reacting material is heated only until a current of hydrogen bubbles is evolved *and no longer*, and the silver-nitrate paper then placed over the mouth of the tube, the danger of reduction by steam is avoided. The author finds that other members of the xanthine series, besides uric acid, such as caffeine, theobromine, xanthine, and guanine, will also cause the purple-black spot resembling the arsenical reaction under the conditions described.—Phar. Jour. and Pharmacist, Dec. 16, 1911, 811.

Phosphoric Acid: Volumetric Methods of Estimation.—After a comparative review of the different methods for the quantitative estimation of phosphoric acid described in the literature, W. Strecker and P. Schiffer arrive at the conclusion that the volumetric method with uranium salts is quite as accurate as the gravimetric method usually relied upon. They furthermore find that the method depending on the precipitation of phosphoric acid with volumetric silver nitrate solution in acetic acid solution, and titration of the excess of silver nitrate with ferrous cyanide, gives values which are in no respect less accurate than those obtainable by gravimetric methods.—From Zschr. f. analyt. Chem., 1911, No. 8.

Chlorides: Estimation of Bromides.—Otto Herting recommends the following new method for the detection and estimation of chlorides in bromides, which is based upon the observation that when bromides are heated with lead peroxide in acetic acid solution the bromine is liberated, whereas the chloride remains unchanged: 3 Gm. of the bromide, 6 Gm. lead peroxide, and 50 Gm. Acetic Acid (50%) are heated together in a 200 Cc. flask on an asbestos plate, rotating the flask occasionally, until bromine vapor

ceases to be eliminated and the mixture begins to assume syrupy consistence; whereupon the flask is removed from the fire. The cooled mixture is diluted with water, filtered and the filter well washed; then 20 Cc. of concentrated nitric acid are added to the filtrate, followed by 15 Cc. of 1/10 N. silver nitrate solution, and after the further addition of 5 Cc. of ferric nitrate, it is titrated with 1/10 N. potassium ferrieyanide solution.—Pharm. Ztg. LV1 (1911), No. 25, 253.

Hexamethylenamine: Quantitative Estimation in Urine.—F. Schröter recommends the following method for the quantitative estimation of hexamethylenamine in urine: To 1000 Cc. of the urine 10 Cc. of 25% acetic acid are added (to prevent subsequent precipitation of creatinine) and the mixture is precipitated with 80 to 120 Cc. of solution of corrosive sublimate, saturated at 30° C. After subsidence, the precipitate is collected on a filter, washed with corrosive sublimate solution, transferred to a flask with 10 to 15 Cc. of concentrated solution of sodium chloride and digested on the water bath. The hexamethylenamine-corrosive sublimate compound ($C_6H_{12}N_4 \cdot 2HgCl_2$) is thus dissolved, while the uric acid precipitated with it remains undissolved. The solution is filtered and the mercury precipitated as oxide from the filtrate by means of potassium hydroxide. The precipitated mercuric oxide being now removed by subsidence and filtration, the filtrate is treated by Kjeldahl's method for the estimation of nitrogen and the quantity of hexamethylenamine present in the urine calculated from the figures so ascertained.—Arch. f. Exper. Pathol. u. Pharmakol., 1911, 161.

Plants: Conservation of Color and Appearance.—Wimmer describes a method for the conservation of plants (herbarium specimens) which consists in impregnating them with a saturated solution of naphthalin, to which, in order to remove its alkaline reaction on violet and red coloring matters, 1 or 2 drops of a concentrated solution of salicylic acid in absolute alcohol are added for each 100 Gm. Simple immersions into this solution usually suffices. Tender plants should be treated by means of a drop-glass, while coarser, fleshy plants must be immersed in the solution for some time. Hollow plant-parts, such for example as bell-shaped flowers, are best coated on the interior and then

on the outer surface. By the described method the natural colors of plants are perfectly preserved.—Schweiz. Wschr. f. Chem. u. Pharm. XLIX (1911), No. 15, 210; from Oesterr. Botan. Zschr. LX, 202-204.

Medicinal Plants: Sterilization and Drying.—Em. Bourquelot, discussing the question of preserving and drying plants, observes that the soluble ferments contained in them continue to exert their oxidizing and hydrolytic action during the process of drying, thus causing the loss of a large proportion of their active constituents. It follows that a preliminary sterilization is necessary to prevent this untoward change, and this can be accomplished only by immersing the plant, immediately after collection in boiling alcohol, most conveniently in an apparatus specially devised by the author and his collaborator Hérissé. The question of what is the best method for the subsequent drying is, however, as yet an open one. Possibly, the method of drying the plants in a vacuum at 0°C , as proposed by Choay, may prove such; but, fortunately, it is found in practice that if the methods of drying commonly in use are carefully conducted, the loss of active constituents by fermentative action is reduced to a minimum, and preliminary sterilization can be omitted if the plants are rapidly and carefully dried immediately after their collection. The author finds a criterion by which the proper execution of the drying process may be estimated in the fact that the content of saccharose is increased proportional to the drying period in the roots, and decreased in the leaves.—Journ. de Pharm. et Chim. 1910, No. 4.

Juniperus Procera, Hochst: *Examination of a Useful East African Cedar.*—Schimmel & Co. recently received for examination a parcel of the wood of an East African species of cedar, of which large forests have been discovered in German East Africa, and which is apparently very suitable for pencil-making. According to Dr. Giessler this wood was derived from *Juniperus procera*, Hochst, a tree which occurs in the mountains of Abyssinia and Usambara, as well as on the slopes of Kilimanjaro and Kenia, growing at an altitude of from 4500 to 9000 feet and in Usambara forming extensive forests. In its anatomical structure the wood bears a close resemblance to that of *Juniperus virginiana*.

The Volatile Oil was distilled from two

kinds of raw material—shaving and short planks. The oil from the shavings (yield 3.2%) was a deep yellow liquid, had a distinct odor resembling vetiver, and gave the following constants: d_{15}° 0.9876; ND_{20}° 1.50893; acid val., 8.4; ester val., 8.4; ester val. after acetylation, 70. Soluble in 1.6 vols. ad more of 80% alcohol, and in one-half its own vol. and more of 90% alcohol. The Oil from the short planks (yield 3.24%) formed at ordinary temperature a semi-solid mass studded with crystals. When drained off from the crystals the oil gave the following constants: d_{15}° 1.0289, ND_{20}° 1.51011, acid v., 27.06; ester v., 7.93; ester v. after acetyl., 89.6. The oil was soluble in 2 vols. a. m. 80% and in one-half its own vol. 90% alcohol. The crystals consisted of cedar camphor. Schimmel's Rep., Oct., 1911, 105-106.

Coniferous Seeds: Characters of Their Fixed Oils.—C. Grimme remarks that, in view of the fact that the fatty oils from the seeds of some conifers are valuable constituents of lacquers and varnishes, on account of their great drying properties, it is a matter for surprise that very little has been published in regard to the characters of these oils. Examination of the oils from the seeds of nine different conifers gave the results recorded below. Eight of the species are European, while the ninth, *Pinus Gerardiana*, from the East Indies, is an article of commerce. Omitting the tabulated statement of the constants determined by the author, which must be referred to in the abstract quoted, it may be stated that all the oils had strong drying properties—the other characters and yield being as follows:

(1) *Pinus silvestris*, L. (*Pinus pinaster*, Ait; *Pinus maritima*, DC.). Yield: 32.1%. Very viscous, brownish-yellow, aromatic turpentine-like odor and taste.

(2) *Pinus montana*, Mill (*Pinus pumilio*, Haenke; *Pinus Mughus*, Scop.). Yield: 29.6%. Thick, yellow, showing a green opalescence in reflected light; aromatic turpentine-like odor and taste.

(3) *Pinus cembra*, L. Yield: 35.7%. Very viscous, yellow; aromatic odor and pleasant sweetish taste.

(4) *Pinus picea*, L. (*Abies pectinata*, DC.; *Pinus abies*, Du Roi; *Abies Alba*, Mill; *Abies picea*, Lam.; *Abies taxifolia*, Desf.; *Abies vulgaris*, Poir; *Abies excelsa*, Lk.). Yield:

32.8%. Brilliantly clear, brown-yellow; aromatic turpentine-like odor and taste.

(5) *Pinus abies*, L. (*Picea vulgaris*, Lk.; *Abies excelsa*, DC.; *Pinus picca*, Du Roi; *Pinus excelsa*, Lam.). Yield: 31.6%. Golden yellow; aromatic odor and taste.

(6) *Pinus pinca*, L. Yield: 21.8%. Thick, brown; pleasant odor and taste.

(7) *Pinus Gerardiana*, Wall. Yield: 30.7%. Very viscous, greenish-yellow; pleasant aromatic odor and taste.

(8) *Cupressus sempervirens*, L. Yield: 10.8%. Green, turbid at ordinary temperature from separation of crystals; characteristic aromatic odor and taste.

(9) *Thuja occidentalis*, L. Yield: 15.0%. Green, rather thick, slightly turbid at ordinary temperature; characteristic aromatic odor and taste.—Chem. Ztg., Aug. 29, 1911.

Camphor: Loss by Vaporization when Stored in Paper Cartons.—Alex. Gunn directs attention to the loss, not usually taken into account, when "Flowers of Camphor" is stored in cardboard cartons, as is now the prevalent practice. Such a carton, containing about 10½ oz., lost 250 grains in weight when stored in a warehouse, not artificially heated, during winter's month, equal to 11% per annum—though it would have been more likely 15% if stored during the entire year, including the six summer months.—Pharm. Journ. and Pharmacist, Dec. 16, 1911, 811.

Camphor-Trees: Abundant Occurrence in German East Africa.—D. E. Hutchins, lately Conservator of Forests, communicates some interesting information on the natural occurrence of camphor-trees in German East Africa. According to this authority, the camphor-tree is abundant and shows a good natural production in a forest situated in the neighborhood of Wilhelmstal and leased by a Mr. Wiese. At one place in the West Usambara Mountains, for example, Hutchins counted 26 seedlings of camphor on 20 square yards. Their appearance, he states, was more vigorous than that of the suckers which constitute 99% of the reproduction in British East Africa. Unfortunately, Hutchins omits to state whether the tree is botanically allied to the true camphor-tree (*Cinnamomum Camphora*). Hutchins regards it as curious that neither the botanical staff at the Imperial German Biological-Agricultural Institute at Amani nor the forest officials at Wil-

helmstal had recognized the tree.—From Agric. Jour. Brit. East Africa, through Chem. and Drug 79 (1911), 18.

Rheum Palmatum: Identification as the Source of Medicinal Rhubarb.—Dr. C. C. Hosseus, having received from Dr. Albert Tafel, the well-known Tibetan explorer, his interesting botanical collection for examination, had the opportunity of making a thorough study of the botanical source of medicinal rhubarb as revealed by five rhubarb plants included in this remarkable collection. Beginning his work in 1909, in the Botanical Museum at Berlin, it has just been completed in the Kew-Herbarium, London, with results which justify the conclusion that the best medicinal rhubarb is derived only from *Rheum Palmatum*, L., thus confirming the previously expressed view of Maximowicz, Tschirch, and Wilson, that the best rhubarb comes from *R. palmatum*, and that this species is the one that should be cultivated. The view that was formerly taken, that the "Southern" rhubarb from Szechuan comes from *R. officinale*, and the "Northern," from Kuku-noor, from *R. palmatum*, var. *R. tanguticum*, has given way to that which regards *R. palmatum* as the true source. The error is explained by a statement of Dr. Tafel's that the Tibetans dig the roots of other kinds of rhubarb and make a show of drying them, and profess that they obtain medicinal rhubarb from them, in order to mislead Europeans. Dr. Tafel himself collected specimens of *R. spiciforme*, with which the Tibetans tried to deceive him in this way. Another error which has got into the literature of the subject, which is now cleared up, is in regard to the use of the terms "high-dried" and "sun-dried." It has been supposed that the "high-dried" rhubarb was dried by artificial heat, but it appears that this is not so; most of the rhubarb that is gathered is peeled and dried at once, the rhizomes being strung on lines stretched from one tree to another, in the cedar woods where the best Shensi rhubarb is known as "sun-dried." "High-dried" rhubarb is dried in a shady part of the houses, usually under the roofs; the term "high" refers to its position, and not to the temperature employed.

In the oldest literature of the subject it is stated that the drug is obtained from one species, which comes from Tanguten land. Some confusion has arisen through the use

of the names Tangutans and Tibetans, which have been supposed to indicate different peoples; but the fact is that the whole of Eastern Tibet, from Lake Kuku-noor in the north to the Himalayas in the south, is inhabited by one people, speaking Tibetan, who call themselves Tibetans or Tangutans indifferently, the names Tangut and Tibet both referring to the country, like the names Cathay and China. Prof. Tschirch has received some seeds from Dr. Tafel, and these under the care of the head gardener, Mr. Schenck, have germinated splendidly, so that a reasonable hope is entertained that the plant will again be prevalent in European gardens.—Arch. d. Pharm. 249 (Aug. 26, 1911), 419-424.

Indian Hemp: Production in Greece.—L. Rosenthaler, reporting the result of a chemical comparison of Grecian Cannabis Indica with Indian hemp produced in India, says that the cultivation of Indian hemp in Greece is confined to a limited area in the neighborhood of Tripolitza, where in normal years from 3 to 4 million kilos of the herb are produced—the entire product being converted into hashish in Tripolitza itself during the months of December and January, in which months dry north winds prevail; the yield is about 10 percent. The hashish is not used in Greece, but is exported, part to Europe and part, indirectly, to Egypt. A sample of Grecian hemp was examined in comparison with a sample of the Indian drug; the former gave 23.9 percent. soluble in alcohol and the latter 21.2 percent. The Grecian drug gave 0.390 percent. of volatile substance, which absorbed 0.4344 of iodine; the Indian gave 0.316, which absorbed 0.3956 of iodine. Cannabinol was determined by distilling 25 Gms. in steam until 2 litres of distillate was collected, thoroughly extracting this with ether, drying the ethereal liquid with anhydrous sodium sulphate, and distilling off the ether; the residue was dried for twenty-four hours in a desiccator, weighed, and the amount of iodine which it would take up determined by the method of Messinger and Vortmann for the determination of phenol. The results of this investigation, although not conclusive as regards the relative activity of the two drugs, cannot be regarded as being unfavorable to the Grecian drug.—Apoth. Ztg. XXVI (1911), No. 65, 678.

Oenanthe Crocata, L.: Proximate Examination.—Frank Tutin has subjected *Oenanthe*

Crocata, L., a poisonous Umbellifer common in England and Western Europe, to proximate examination, the material consisting of the entire dried plants which had been specially collected for the purpose in early spring, and therefore represented chiefly the tuberous roots. These, which somewhat resemble parsnips, were found to be devoid of enzyme, and no part of the plant, at any stage of growth, contained an alkaloid.

An alcoholic extract of the plant, when kept for some time deposited an amount of crystalline cane sugar equivalent to 3.8 percent. of the weight of dried material employed. This extract, when distilled in a current of steam, yielded a yellow essential oil possessing a somewhat unpleasant odor. This oil had the following constants: $d_{15}^{15} = 0.9381$; $a_D + 1^\circ 16'$ in a 25 Mm. tube. From the portion of the alcoholic extract which was soluble in water there were isolated a small amount of a colorless crystalline substance (m.p. 83°) which, on keeping, assumed a purple color. It also contained some amorphous products and a very large amount of dextrose and laevulose.

The portion of the extract which was insoluble in water consisted of a dark-colored, viscid resin amounting to nearly 3 percent. of the weight of the plant employed. From this material the following compounds were isolated: Triacontane, $C_{30}H_{62}$; hentriacontane, $C_{31}H_{64}$; a phytosterol (m.p. 135°); ipuranol, $C_{25}H_{48}O_2(OH)_2$; palmitic acid; and a mixture of unsaturated acids, consisting chiefly of linolic acid. The greater amount of the material insoluble in water was, however, of a resinous nature. The neutral portions of the petroleum and ether extracts of this resin represent the toxic principle of the *Oenanthe crocata*.—Pharm. Jour. and Pharmacist, Aug. 26, 1911, 296-298.

Fern Rhizomes: Anthelmintic Value of Various Sorts.—In view of the statement that the ethereal extract of *Dryopteris dilatata* is at last four times as active as the corresponding extract of the official *Aspidium filix-mass* rhizome, and has therefore been suggested to replace male fern in the various pharmacopœias, H. Rosendahl has examined a number of anthelmintic fern rhizomes, his results confirming the superiority of *Dryopteris dilatata*. The yield of ethereal extract is about the same (10%); but while it takes from 8-10 Cm. of oleo-resin of *Aspidium* to

drive off the *Bothricephalus latus*, it requires only 2 Gm. of the oleo-resin prepared from the rhizome of *Dryopteris dilatata*, or 1 Gm. of that from *D. dilatata* var. *spinulosa*—the latter yielding, however, as much as 17% of oleo-resin. The rhizomes of other ferns yielded very small percentages of oleo-resin: *Filicis aquilini*, 2%; *Filicis feminac*, 0.9%; *Filicis Alpetris*, 0.7%. Under the microscope these extracts exhibit various crystalline structures which serve well for their identification.—Svenck Farmaceutisk Tidskrift, 1911, No. 5, 85-89.

Extract of Male Fern: Frequent Adulteration with Castor Oil.—Ernest J. Parry has examined twenty samples of extract of male fern obtained from various sources, and found them, with a single exception, adulterated with castor oil, amounting to from 30 to 60%. These adulterated extracts were all of the same type, and much brighter green in color than the genuine extract. The author has determined the

Constants of Genuine Extract of Male Fern, carefully prepared according to the official process by Mr. J. C. Umney, to be as follows: Sp. gr. at 15, not below 1.000, usually 1.025.

Refraction Index at 20°, not below 1.500, usually 1.5050-1.5090.

Solubility in Petroleum Ether, complete in 10 volumes, with exception of a little flocculent matter, but no oily separation.

Saponification Value, 230 to 250; unsaponifiable matter not above 8 to 11%.

Fatty Acids, should have a mean combining weight of from 240 to 255.

Crude Filicin, determined by the Pharm. Helv., should not be below 20%, usually 22 to 23%. This is regarded as of greatest importance—the test being carried out as follows: 5 Gm. of the extract are dissolved in 30 Gm. of ether, and the solution is well shaken with 100 Gm. of a 3% solution of barium hydroxide for 5 to 10 minutes. After complete separation, the aqueous liquid is filtered, and 85 Cc. of the filtrate (=4 Gm. of extract) is acidified with 2.5 Cc. of strong hydrochloric acid and shaken out four times with ether. The ethereal extracts are mixed, filtered, evaporated, and the residue is dried at 100° to constant weight.—Pharm. Jour. and Pharmacist, Dec. 9, 1911, 778.

Oleoresin of Male Fern: Dose Depending

on Method of Administration.—While the German Pharmacopœia prescribes a maximum daily dose of 10 Gm., Dr. Drenkhaw has hitherto always given extract of male fern in doses of 15 to 20 Gm. to adults and 8 to 10 Gm. to children without ever observing symptoms of poisoning. This is perhaps due to the method of administration adopted; the poisonous principle, filicic acid is nearly insoluble in water, but soluble in alkalies and fats, and these are therefore carefully avoided, in order that filicic acid shall not be absorbed when in the intestine. A dose of cascara or rhubarb is first given, if necessary, but castor oil and alkaline laxatives are avoided; all fat food is forbidden on the day on which the extract of male fern is given and the following day. A large quantity of raspberries is given overnight, and in the morning a cup of sweet black coffee, without bread, and after an hour's interval 3 Gm. of male extract every ten minutes, or 5 Gm. of male fern every fifteen minutes, with sweetened diluted lemon-juice or solution of citric acid; the quantity of the extract thus taken in an hour is 18 to 20 Gm. If evacuation of the bowels does not occur within an hour after the last dose, it is followed by a dose of 0.6 Gm. of calomel.—Apoth. Ztg. from Münch. Med. Wschr., 1911, 2020.

Pine Needle Oil from Pinus Pumilio: New Oxygenated Constituents.—E. Böcker and A. Hahn have isolated several new oxygenated bodies from the oil of the needles of *Pinus pumilio*. An oil, which had been freed from terpenes and sesquiterpenes (b. p. 85° to 178°; 13 MM.), was split into several fractions. The fraction boiling between 148° and 160° yielded a liquid of faint balsamic odor, having the elementary formula $C_9H_{16}O$, which is probably an aldehyde. The fraction boiling between 127° and 148° (13 MM.) yielded a laevorotatory body, $C_{15}H_{26}O$, which is probably a ketone. The third fraction, boiling between 87° and 95° (14 MM.), yielded a volatile oil possessing the peculiar aroma of pumilio pine needle oil, to which the authors have given the name

Pumilone.—It has the formula $C_{15}H_{26}O$ and possesses the following properties: It is a saturated body and is present in the original oil in the amount of about 1 to 2%.—From Jour. f. Prakt. Chem. II, 83 (1911), 489.

Olive Oil: Method of Bleaching Practiced in Italy.—According to a French Consular report, consumers of olive oil are coming more

and more to give preference to an oil of pale amber color, in place of the natural golden yellow or greenish, and the producers of the oil are accordingly driven to removing the color of the oil by artificial means. Citric and tannic acids are both employed for this purpose, especially the latter. If much color is to be removed, about 5 percent. of tannic acid is used; for medium-colored oil, 3 percent. suffices, and for paler oils from 1 to 2 percent. The tannic acid is dissolved in water, the solution added to the oil, and

mixed for fifteen minutes; after half hour the mixture is poured into another vessel, and some hours later it is poured back into the first and allowed to stand for three days, when the oil is drawn off. Some oils can be sufficiently decolorized by water alone, the oil being broken up into small drops and allowed to fall into water from a height of several metres. This method is most successful in the open air in bright, sunny weather.—Schw. Wschr. f. Chem. u. Pharm. XLIX (1911), No. 34, 476.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

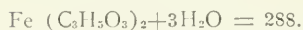
APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

(Continued from February issue—page 168.)

FERRI LACTAS.

IRON LACTATE.

Ferrous Lactate.



It should contain not less than 97 per cent of pure ferrous lactate. Keep in well-stoppered bottles.

A greenish white crystalline powder or crystalline masses, having a slight characteristic odor and a mild, sweet, ferruginous taste.

Slowly but completely soluble in 40 parts of water, and in 12 parts of boiling water; freely soluble in solution of alkali citrates yielding a green solution; almost insoluble in alcohol.

When strongly heated, the salt froths up, gives out dense white, acrid fumes, chars and finally leaves a brownish red residue.

The aqueous solution has a greenish-yellow color, a slightly acid reaction and gives a deep blue precipitate with potassium ferricyanide T. S. and a light blue precipitate with potassium ferrocyanide T. S.

A 2 per cent aqueous solution of the salt should not afford with lead acetate T. S. nor, after acidulation with hydrochloric acid, with hydrogen sulphide T. S. more than a whitish opalescence (limit or absence of citrate, tartrate, malate, etc., and of foreign metals).

The aqueous solution (1 to 20) acidulated with nitric acid, should not afford more than a slight opalescence with barium chloride T. S. (limit of sulphate) or with silver nitrate T. S. (limit of chloride).

If 25 Cc. of the aqueous solution (1 in 50) mixed with 5 Cc. of diluted sulphuric acid, be boiled for a few minutes, then precipitated by an excess of potassium or sodium hydroxide T. S., the filtrate, mixed with a few drops of alkaline cupric tartrate V. S., and heated to boiling, should not afford a red precipitate (absence of sugar).

If a portion of the salt be triturated with strong sulphuric acid, no offensive odor should be developed (absence of butyric acid), nor should any gas be evolved (ab-

sence of carbonate), and the mixture, after standing for some time, should not assume a brown color (absence of sugar, gum, or other readily carbonizable impurities).

If 1 Gm. of Ferrous Lactate, contained in a porcelain crucible be moistened with nitric acid, and carefully ignited, it should leave a residue of ferric oxide weighing not less than 0.275 nor more than 0.278 gm. This residue should not have an alkaline reaction upon litmus paper, nor yield anything soluble to water (absence of *foreign salts*).

KAVA KAVA.

METHYSTICUM.

Kava Ava.

The rhizome and roots of *Piper methysticum*, Forster (Fam. *Piperaceae*) a shrub indigenous to the Sandwich Islands.

Consisting of a large, irregular, knotty crown, often 12 cm. or more in diameter, from which proceed long, cylindrical, tough, nearly simple roots, which tend to fray out into bare separated fibro-vascular bundles; externally dark-brown or blackish, internally white, the crown soft, light, spongy, and granular and very starchy. Odor faint, but characteristic. Taste aromatic and pungent, slightly bitter, more or less local anaesthesia resulting.

Upon incineration Kava Kava should yield about 7 per cent of ash.

KOLA.

KOLA.

Kola (or Cola) Nuts. Soudan Coffee.

The dried cotyledons of several species of *Cola* (Fam. *Sterculiaceae*), corresponding to the following description:

Irregularly plano-convex, broadly oval, or approaching circular, in outline, 2.5 to 5 cm. long, or triquetrous longitudinal sections of such bodies; brown, with the outer surfaces slightly incurved and sharp; heavy, hard and tough; odorless and having a slightly astringent taste.

Upon incineration Kola should yield not over 3 per cent of ash.

When assayed by process of the U. S. P. VIII for Guarana, Kola should yield not less than one per cent caffeine.

KOLA RECENS.

FRESH KOLA NUTS.

The entire and undried seeds of *Cola acuminata* (Beauv). Schott and Endl. and other species of *Cola*. (Fam. *Sterculiaceae*).

Fresh Kola consists of a cartilaginous

testa of a bright purplish to a dull brownish color, and containing 2 to 5 cotyledons.

From 30 to 40 mm. long, nearly as broad and about two-thirds as thick, irregularly ovoid and obscurely triquetrous, with blunt angles; externally varying from bright-purple, or occasionally white, to a dull pale brown; testa thickish, leathery or cartilaginous; exalbuminous, the embryo consisting of 2 to 5 fleshy cotyledons of a whitish or pinkish color and a bitterish and somewhat astringent taste. Upon incineration Fresh Kola should yield not more than 2.5 per cent of ash.

Fresh Kola, when assayed by the process given under Guarana in the U. S. Pharmacopoeia VIII., should yield not less than 9.75 per cent of caffeine.

MAGNESII SULPHAS EXSICCATUS.

DRIED MAGNESIUM SULPHATE.

Magnesium Sulphate dried at 100° C. and corresponding to from 77.5 to 81.5 per cent absolute Magnesium Sulphate $\text{Mg SO}_4 = 120.39$.

Dried Magnesium Sulphate may be prepared by heating (with stirring) 100 parts of crystallized magnesium sulphate in a tared porcelain dish in a drying oven first at a temperature of 60° C. (140° F.) to 70° C. (155° F.) and then at a gradually rising temperature until the substance has lost from 37 to 40 per cent of its weight.

A fine white powder, without odor, and having a cooling, saline, bitter taste. It is almost completely soluble in water. When exposed to air it absorbs moisture.

An aqueous solution of the salt (1 in 40) should be neutral to litmus paper.

When mixed with ammonium chloride T. S. and ammonia water, the aqueous solution of the salt (1 in 40) yields with sodium phosphate T. S. a white, crystalline precipitate. With barium chloride T. S. the aqueous solution of the salt yields a white precipitate insoluble in hydrochloric acid.

Ten Cc. of the aqueous solution of the salt (1 in 200) should not respond to the time limit test for heavy metals prescribed in the United States Pharmacopoeia VIII. Five Cc. of the aqueous solution of the salt (1 in 40) should not respond to the modified Gutzeit's test for arsenic, United States Pharmacopoeia VIII.

If from 0.200 Gm. to 0.300 Gm. of dried magnesium sulphate be dissolved in 50 Cc.

of water, the solution filtered if necessary, and if 10 Cc. of ammonium chloride test solution and sufficient ammonia water to render the mixture alkaline, be added in the order named, shaking after the addition of each reagent, the mixture allowed to stand for 12 hours, the precipitate collected in a tared Gooch crucible, washed with 1 per cent ammonia water until free from chlorides, dried, heated to low redness for 15 minutes, cooled and weighed, the weight of the resultant magnesium pyrophosphate should correspond to at least 77.5 per cent of pure anhydrous magnesium sulphate (Mg SO_4).

FOLIA VERBASCI.

MULLEIN.

Mullein Leaves. Flannel Leaf. Blanket Leaf. Mullein Dock.

The dried leaves of *Verbascum Thapsus* Linné (Fam. *Scrophulariaceae*).

From 1 to 6 dm. long and 3 to 15 cm. broad, obovate with narrowed base, or varying to oblong or oblong-lanceolate, without true petiole, obtuse or acutish at the summit, very thick, rather tough, light yellowish-gray, densely long-tomentose. Nearly odorless and of a mucilaginous and bitterish taste.

Upon incineration Mullein leaves should yield not over 14 per cent of ash.

OLEUM CARDAMOMI.

OIL OF CARDAMOM.

A volatile oil distilled from the seeds of *Elettaria Cardamom*, White et Maton (Fam. *Zingiberaceae*). It should be kept in well-stoppered amber-colored bottles, in a cool place, protected from light.

A colorless or very pale yellow liquid having the characteristic aromatic, penetrating and somewhat camphoraceous odor of Cardamom and a persistently pungent and strongly aromatic taste.

Specific gravity 0.924 to 0.947.

Very soluble in alcohol and dissolves readily and clearly in 4 volumes of 70 per cent alcohol.

It is dextrogyrate, the angle of rotation varying from $+22^\circ$ to $+40^\circ$ in a 100 mm. tube, at a temperature of 25°C .

FRUCTUS PAPAVERIS.

POPPY CAPSULES.

The dried, fully grown, unripe fruits of *Papaver somniferum* Linné. (Fam. *Papaveraceae*).

Globular or ovoid, usually 3 cm. to 3.5 cm.

in diameter, but varying in size, more or less sunken or depressed on the sides and contracted at the base into a sort of neck immediately above a tumid ring at the point of attachment with the stalk; crowned at the apex with the 7 to 15 rayed stigma disk; outer wall of pericarp smooth, hard, grayish-yellow to brownish-yellow, often marked with black spots; interior surface rugose, finely striated transversely and bearing thin, brittle membranaceous placentae, which extend from the sutures toward the center and bear on their faces and edges numerous minute conspicuously reticulated, reniform white seeds; odorless; taste slightly bitter.

Upon incineration Poppy Capsules yield not more than 10 per cent of ash.

For pharmaceutical purposes the seeds are to be separated and rejected.

If 1 Gm. of the powdered capsules be macerated for two hours with 10 Cc. of water containing 1 per cent hydrochloric acid, the filtered liquid should give distinct precipitates with iodine T. S. and Mayer's Reagent.

PARA COTO.

PARA COTO.

Para Coto Bark.

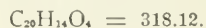
The bark of an unidentified tree (Fam. *Lauraceae*) indigenous to Northern Bolivia.

In sections or fragments of large quills, of indefinite length, usually 3 to 6 cm. broad, the bark 5 to 15 mm. thick; of a deep-brown color throughout, the outer surface nearly smooth, lightly transversely fissured, and often very thinly scaly, the inner surface very coarsely striate; hard and heavy, but splitting and breaking readily, the fracture earthy in the outer layer, with an irregular resinous band, coarse splintery in the inner, with large yellowish-brown bast-fibers and stone-cells and darker resin tissue. Odor strong and characteristic. Taste strongly aromatic and pungent, followed by a peppery-biting sensation.

Upon incineration Para Coto yields about 2 per cent of ash.

PHENOLPHTHALEINUM.

PHENOLPHTHALEIN.



A dibasic phenol derivative (Dihydroxy-phtalophenone, para-phtalein), ($\text{C}_6\text{H}_4\text{OH}$), $\text{COC}_6\text{H}_4\text{CO}$, obtained by the condensation of phenol and phtalic anhydride.

White, sometimes slightly yellowish or

pinkish, micro-crystalline or amorphous powder, odorless, tasteless and permanent in the air.

Almost insoluble in water (1-80000), only slightly soluble in boiling water (1-30000), soluble in about 10 parts alcohol at 25° C. and in about 2 parts of boiling alcohol, soluble in about 45 parts of ether at 25° C. The crystallized variety dissolves in ether with difficulty, while the amorphous goes in solution readily. Soluble in caustic alkalis with a dark red color, showing violet red at the meniscus; the alkaline solution is decolorized on the addition of an excess of acid or on boiling with powdered zinc.

It melts at 253°-254° C., forming a clear liquid of pale brownish color.

On incineration it should not leave more than 0.1 per cent of ash.

In concentrated sulphuric acid it dissolves producing an orange red color.

The solution of 1 part of Phenolphthalein in 50 parts of alcohol should be colorless (absence of resinous substances).

On shaking 1 Gm. of Phenolphthalein with 70 cc. of tenth-normal potassium hydroxide V. S. it should dissolve with a rich red color, without leaving any residue (absence of fluoran).

If 1 Gm. of Phenolphthalein be shaken with 20 Cc. of water and filtered, one-half of the filtrate, acidulated with hydrochloric acid should give no precipitate or turbidity with barium chloride T. S. (absence of sulphates); the other half, acidulated with nitric acid should give no precipitate or turbidity with silver nitrate T. S. (absence of chlorides).

POTASSII GLYCEROPHOSPHAS.

POTASSIUM GLYCEROPHOSPHATE.

A semi-solid, colorless or yellowish mass, having a saline taste, odorless, containing about 75 per cent of absolute Potassium Glycerophosphate $C_3H_7O_3 \cdot PO_3K_2 = 248.26$.

Very soluble in water. Insoluble in alcohol.

When exposed in a thin layer to a temperature of 140° C., until it ceases to lose weight, the loss should be about 25 per cent.

When heated to a higher temperature, it evolves inflammable vapors and at a red heat is converted into potassium pyrophosphate. The residue from ignition of 1 Gm. should weigh about 0.48 Gms. and should impart a violet color to a non-luminous flame.

The aqueous solution (1 in 20) is slightly alkaline to litmus.

On addition of lead acetate T. S. it yields a white precipitate.

Magnesia Mixture T. S., or cold Ammonium Molybdate T. S., should give no precipitate within five minutes (limit of phosphate). On warming, or after long standing, Ammonium Molybdate T. S. produces a yellow precipitate.

If 1 Gm. be thoroughly triturated in a mortar with 20 Cc. of alcohol, the filtrate, when evaporated on a waterbath, should leave not more than 1 per cent residue (absence of glycerin, organic matter, etc.).

The aqueous solution (1 in 20) should not respond to the U. S. P. time limit test for heavy metals.

SEMEN CYDONIAE.

QUINCE SEED.

The dried ripe seeds of *Cydonia vulgaris* Pers. (Fam. *Rosaceae*), with their adhering gum, and with not more than five per cent, by weight, of other matter.

Single, or adhering in irregular masses, usually of from 2 to 10, by their dried, exuded gum, and often enclosed in a mass of such gum; 5 to 8 mm. long, 3 to 5 mm. broad, and almost as thick; ovoid, with rounded base and somewhat pointed summit, one or two sides more or less flattened or even slightly concave; anatropous, the hilum at the pointed end; externally of a deep, purple-brown color, the kernel whitish, exalbuminous, the embryo fleshy, nearly odorless, of a bitterish taste and strongly mucilaginous when chewed.

Upon incineration Quince Seed should yield not more than 6 per cent of ash.

RHAMNUS CATHARTICUS.

BUCKTHORN BERRIES.

Fructus Rhamni cathartici. Bacca Spinac Cervinae.

The dried ripe fruit of *Rhamnus catharticus* Linné. (Fam. *Rhamnaceae*).

Flattened globoid or ovoid, 4 to 8 mm. in diameter, externally purple-black, wrinkled from shrinking of the mesocarp in drying; 3 to 4 celled, each cell containing a brown triangular-convex, seed-like nutlet; in the fully dried ripe fruit the pedicel is usually lacking; taste first sweetish, then nauseating bitter; colors the saliva purplish-red; odor faint, unpleasant.

On soaking in water the drupe readily as-

sumes its original globular shape, approximately 1 cm. in diameter. The expressed pulp is colored red by acids and yellow by alkalis.

An aqueous extract shaken out with ether or benzole and the latter solution shaken with 5 per cent ammonia water, the ammonia solution assumes a cherry-red color.

The unripe fruit is green to greenish-brown, firm, furrowed, pedicel usually attached; very bitter, colors the saliva greenish-yellow and is to be rejected for preparations of the N. F.

Upon incineration Buckthorn Berries should yield not over 5 per cent of ash.

CROCUS.

SAFFRON.

Saffron. True Saffron. Spanish Saffron.

The stigmas and red parts of the styles of *Crocus sativus* Linné. (Fam. *Iridaceae*), containing not more than 10 per cent of yellow style-tissue and fragments of stamens and perianth.

Separate stigmas or three attached to the top of the style, about 3 Cm. long, flattish-tubular, almost thread-like, broader and notched above; orange-brown, odor strong, characteristic aromatic; taste bitterish and aromatic, but not sweet.

When pressed between filter paper the latter should not display transparent spots from the absorption of oil. When chewed it tinges the saliva deep orange yellow.

When soaked in water it should not deposit any pulverulent, mineral matter, nor show the presence of organic substances differing in shape from that described.

On agitating 10 mg. of Saffron with 1000 Cc. of water, the liquid will acquire a distinct yellow color. No color should be imparted to benzin agitated with Saffron (absence of picric acid and some other coal tar colors).

On drying 1 Gm. Saffron at 100° C., it should lose not more than 14 per cent of its weight (absence of added water).

When thus dried, and ignited with free access of air, the dry Saffron should leave not more than 7.5 per cent of ash, which should not be fusible (absence of foreign inorganic substances).

If a small portion of the dried Saffron be powdered and placed upon an object glass, then covered with a cover glass and strong sulphuric acid be allowed to flow in under

the cover glass, deep blue radiations which quickly become red and then brownish-red should be seen, under the microscope, to proceed from each of the small particles of the powder (absence of foreign inorganic substances)

Saffron should be kept in closed containers, protected from the light.

TUBERA SALEP.

SALEP.

The tubers of various species of *Orchis* and closely related plants of the group *Ophrydeae* (Fam. *Orchidaceae*) collected while flowering, washed and dried.

Small oval or globular tubers, flattened or wrinkled rarely palmate, exhibiting at the top the scar of the stem bud; of a pale yellowish-brown color, hard, horny, semi-transparent, odorless and of a mucilaginous taste. If one part of Salep in powdered form be boiled with 50 parts of water, a stiff mucilage is formed on cooling, which is colored blue by Iodine T. S.

The powdered Salep should leave on incineration not more than 3 per cent of ash.

VINUM XERICUM.

SHERRY WINE.

An alcoholic liquid made by fermenting the juice of fresh grapes, the fruit of *Vitis vinifera* (Fam. *Vitaceae*), freed from seeds, stems and skins, and fortifying with alcohol or brandy.

The term Sherry Wine was originally limited to that variety produced in the vicinity of Xeres, in Spain. Now, however, the term Sherry Wine means a natural wine, having a color and peculiar nutty flavor generally associated with this wine. For medicinal and pharmaceutical purposes, native wines may be used as Sherry Wine, provided that they correspond to the description and tests given below.

Sherry Wine should be preserved in well-closed casks, filled as full as possible, or in well-stoppered bottles, in a cool place.

A pale yellowish-brown or amber colored liquid, having a pleasant aromatic odor, free from yeastiness and a fruity, pleasant and characteristic taste, without excessive sweetness or acidity, containing not less than 18 nor more than 21 per cent absolute alcohol, by volume.

The specific gravity at 25° C. should be not less than 0.987 nor more than 0.998.

If 100 Cc. of Sherry Wine be evaporated,

the residue, when dried during 12 hours on the waterbath, should amount to not less than 3 nor more than 5.5 Gm.; this residue, ignited at a low temperature and burned gradually to whiteness, moistened with a small portion of ammonium carbonate T. S. and again carefully ignited, should weigh not less than 0.25 nor more than 0.5 Gm.

To neutralize 50 Cc. of Sherry Wine should require not less than 2.5 nor more than 4 Cc. of normal potassium hydroxide V. S. (limit of free acid), litmus T. S. being used as indicator.

If 50 Cc. of Sherry Wine be acidulated with hydrochloric acid, heated, and an excess of barium chloride T. S. be added, the resulting precipitate, when collected on an ash free filter, washed, dried, ignited and weighed, should, in true Sherry Wine, weigh not less than 0.172 Gm. nor more than 0.344 Gm., corresponding to not less than 0.1 gramme nor more than 0.2 gramme of potassium bisulphate, resulting from the practice of treating must with gypsum. Native wines, which, as a rule are not thus treated, should yield not less than 0.017 Gm. nor more than 0.034 Gm. of barium sulphate corresponding to not less than 0.01 gramme nor more than 0.02 gramme of potassium bisulphate, or about 1/10 as much potassium bisulphate as Spanish Sherry Wine.

If 10 c. c. of Sherry Wine be diluted with an equal volume of water and treated with 5 drops of ferric chloride T. S. only a faint, greenish-brown color should make its appearance (absence of more than traces of tannic acid).

If 75 c. c. of Sherry Wine be acidified with 5 c. c. of diluted sulphuric acid (1 to 3), and thoroughly shaken in a separatory apparatus with a mixture of equal parts of petroleum benzin and ether, and the solvent, after separation, be transferred to a porcelain dish, allowed to evaporate spontaneously and the residue dissolved in 3 Cc. of water, the solution should not have a sweet taste (absence of saccharin), nor should it give a violet color upon the addition of a diluted solution of ferric chloride (1 to 200) (absence of salicylic acid).

STRONTIUM ARSENITIS.

STRONTIUM ARSENITE.

$\text{Sr}(\text{AsO}_2)_2 = 301.62.$

It should contain not less than 95 per cent of actual strontium arsenite and should be kept in well-stoppered bottles.

A heavy, white powder, odorless and tasteless. On exposure to the air, it is slowly oxidized to arsenate.

Slightly soluble in water and alcohol, soluble in diluted acetic, hydrochloric and nitric acids.

The aqueous solution is alkaline to litmus and phenolphthalein.

For supplying tests of identity and purity, dissolve 2 Gm. of strontium arsenite in a mixture of 35 Cc. of water and 5 Cc. of hydrochloric acid. No distinct effervescence should take place (limit of carbonate).

If a loop of platinum wire be moistened with the solution and held in a non-luminous flame, it should impart to the latter an intense crimson color.

If a portion of the solution be neutralized with ammonia water, addition of potassium chromate T. S. gives a yellow precipitate, soluble in acetic acid.

Addition of hydrogen sulphide T. S. produces a lemon-yellow precipitate, which, when thoroughly washed, should be completely soluble in ammonium carbonate test solution (absence of cadmium, antimony and tin).

If 1 Gm. of Strontium Arsenite be dissolved in a mixture of 10 Cc. of water and 3 Cc. of hydrochloric acid, the solution neutralized with ammonia water, then 1 Gm. of sodium acetate dissolved in the liquid and the solution made slightly acid by the addition of acetic acid, it should not become cloudy within 10 minutes after addition of 5 drops of potassium dichromate T. S. (limit of barium).

If 1 Gm. of Strontium Arsenite be dissolved in a mixture of 10 Cc. of water and 3 Cc. of hydrochloric acid, warming if necessary, ammonia water added slightly in excess, then 3 Gm. of ammonium sulphate added and the mixture heated about 5 minutes on a waterbath, the filtrate should not become cloudy within five minutes after the addition of 5 drops of ammonium oxalate test solution (limit of calcium).

Dissolve about 0.2 Gm. of strontium arsenite in a little warm water with the aid of a few drops of hydrochloric acid, dilute to about 25 Cc. with water, add diluted sulphuric acid until no further precipitate is produced, neutralize with sodium bicarbonate and dissolve in the liquid 2 Gm. more of sodium bicarbonate; titrate with tenth-normal iodine V. S. Multiply the number of Cc. tenth-normal iodine V. S. consumed by 0.7541

and divide this product by the weight of strontium arsenite taken. The quotient represents the percentage of absolute strontium arsenite.

THUJA.

ARBOR VITAE.

Yellow Cedar. Fine White Cedar. Tree of Life. Feather-leaf Cedar.

The recently dried young twigs of *Thuja occidentalis* Linné. (Fam. *Pinaceae*).

Twigs leafy, fan-shaped, flattened, bearing the scale-like leaves appressed in four rows; leaves of the edges boat-shaped, the intermediate flat, those at the tips of the twigs very broad, the lower elongated, all bearing conspicuous glands on the back. Odor strongly balsamic, aromatic and pungent, taste camphoraceous, terebinthinate and bitter.

Upon incineration Thuja yields about 7 per cent of ash.

PINUS ALBA CORTEX.

WHITE PINE BARK.

Pine Bark.

The dried inner bark of *Pinus Strobus* Linné. (Fam. *Pinaceae*).

In flat pieces of very variable size and about 1 to 3 mm. thick; outer surface varying from a pale pinkish white, when fresh, to a light or rather deep yellowish brown, according to freshness, occasionally with small patches of the gray-brown periderm adhering, more or less fuzzy, and often showing small scattered pits, inner surface either lighter or darker than the outer, finely striate; fracture tough-fibrous, transverse section an outer yellowish and an inner whitish band. Odor slight, terebinthinate. Taste slightly mucilaginous, bitter-sweet and astringent.

Upon incineration White Pine Bark should yield not more than 2 per cent of ash.

ZINCI DIOXIDUM.

ZINC DIOXIDE.

Zinc Peroxide.

A partly hydrated form of zinc dioxides (ZnO_2) containing not less than 45 per cent of pure zinc dioxides, when estimated by the method given below.

A heavy yellowish powder, stable in dry air; almost insoluble in water and readily soluble in diluted acids with the formation of hydrogen dioxides.

A solution of 0.1 Gm. of zinc dioxides in 5 Cc. of diluted hydrochloric acid, rendered

slightly alkaline with ammonia water and re-acidulated with acetic acid, yields a voluminous precipitate upon the passage of hydrogen sulphide through the mixture.

QUANTITATIVE ESTIMATION OF ZINC DIOXIDE.

Agitate a weighed quantity, about 0.4 Gm. of zinc dioxides with 25 Cc. of water and to effect the solution of the substance add 25 Cc. of diluted sulphuric acid (1 in 5). Then add gradually tenth-normal potassium permanganate V. S. from a burette, until a permanent pink color remains after agitation. Multiply the number of Cc. of the tenth-normal potassium permanganate V. S. consumed, by 0.004833, and divide this product by the weight of the zinc dioxides taken; the result multiplied by 100 represents the percentage of pure zinc dioxides present.

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COMMITTEE ON NATIONAL FORMULARY.

The following is the fifth installment of some of the new formulas that have been suggested for inclusion in the forthcoming edition of the National Formulary. The Committee is desirous of having them thoroughly tried by pharmacists in different sections of the country so as to avoid as much as possible unfavorable comment after the final publication of the book. Comments and criticisms based on practical experiences will be welcome. All communications should be addressed to the Chairman of the Committee,

PROF C. LEWIS DIEHL,
932 Cherokee Road,
Louisville, Ky.,

who will submit the comments to the Subcommittee having the matter in charge.

FLUIDEXTRACTUM BAPTISIAE.

Fluidextract of Baptisia.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol3 volumes
Water1 volume

FLUIDEXTRACTUM CHIONANTHI.

Fluidextract of Chionanthus.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol3 volumes
Water1 volume

FLUIDEXTRACTUM COCILLANAE.

Fluidextract of Cocillana.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol3 volumes
Water1 volume

FLUIDEXTRACTUM CONDURANGO.

Fluidextract of Condurango.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Diluted Alcohol.

FLUIDEXTRACTUM DIOSCOREAE.

Fluidextract of Dioscorea.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol4 volumes
Water1 volume

FLUIDEXTRACTUM DROSERAE.

Fluidextract of Drosera.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol2 volumes
Water1 volume

FLUIDEXTRACTUM ECHINACEAE.

Fluidextract of Echinacea.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol4 volumes
Water1 volume

FLUIDEXTRACTUM EUPHORBIAE PILULIFERAE.

Fluidextract of Euphorbia Pilulifera.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Diluted Alcohol.

FLUIDEXTRACTUM HELIONIATIS.

Fluidextract of Helonias.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Diluted Alcohol.

FLUIDEXTRACTUM NEPETAE.

Fluidextract of Nepeta.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol3 volumes
Water4 volumes

FLUIDEXTRACTUM RHAMNI CATHARTICI.

Fluidextractum Rhamnus Catharticus.

Reserve the first 750 Cc. and then proceed as in Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Diluted Alcohol.

FLUIDEXTRACTUM SENECEIONIS.

Fluidextract of Senecio.

Process A (see N. F. III, p. 56), No. 40 powder.

Menstruum: Alcohol2 volumes
Water1 volume

FLUIDEXTRACTUM TRIFOLII.

Fluidextract of Trifolium.

Reserve the first 800 Cc. and then proceed as in Process A (see N. F. III, p. 56), No. 30 powder.

Menstruum: Diluted Alcohol.

FLUIDGLYCERATES.

Fluidglycerates are intended to be of the same strength as fluidextracts. They contain approximately 50 percent. by volume of glycerin and no alcohol. The drug should be in a No. 20 or 30 powder unless otherwise directed. For drugs that do not require either acid or alkaline menstruum they may be prepared by the following outlined process:

GENERAL PROCESS.

Drug, in coarse powder.....1000 Gm.
Glycerin 500 Cc.
Water1500 Cc.
Chloroform Water, a sufficient
quantity to make.....1000 Cc.

Mix the Glycerin and Water and moisten the drug thoroughly with a portion of the mixture, then *pack it very lightly* in a cylindrical percolator, and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and having closely covered the percolator, macerate for 48 hours. Then allow the percolation to proceed slowly until the drug is exhausted, using first the remainder of the menstruum and afterward Chloroform Water. Reserve the first 500 Cc. of percolate and evaporate the remainder on a water bath, the weaker portion first, then the stronger until it is reduced to 600 Cc., then add the reserved portion and continue the evaporation until the product measures 1000 Cc. Allow the preparation to stand for a few days, then decant the clear portion and strain the remainder.

FLUIDGLYCERATUM GLYCYRRHIZAE.

Fluidglycerate of Glycyrrhiza—Fluidglycerate of Licorice.

Glycyrrhiza, Russian, in No. 20

powder1000 Gm.

Ammonia Water..... 60 Cc.

Mix 50 Cc. of the Ammonia Water with 600 Cc. of the Glycerin Water menstruum, moisten the ground drug with the mixture and complete the preparation by following the General Process for Fluidglycerates, excepting that the mixed percolates are to be evaporated to 990 Cc. and the remaining 10 Cc. Ammonia Water added to the cold product.

FLUIDGLYCERATUM KRAMERIAE.

Fluidglycerate of Krameria.

Krameria, in No. 20 powder...1000 Gm.

To make..1000 Cc.

Follow the General Process for Fluidglycerates, using 600 Cc. of menstruum to moisten the ground drug.

FLUIDGLYCERATUM RHAMNI PURSHIANAE.

Fluidglycerate of Cascara Sagrada.

Cascara Sagrada, in No. 20

powder1000 Gm.

To make..1000 Cc.

Follow the General Process for Fluidglycerates, using 500 Cc. of menstruum to moisten the ground drug.

FLUIDGLYCERATUM RHAMNI PURSHIANAE

AROMATICUM.

Aromatic Fluidglycerate of Cascara Sagrada.

Cascara Sagrada, in No. 20

powder 750 Gm.

Fluidglycerate of Glycyrrhiza.. 250 Cc.

Lime 38 Gm.

Glycerin 375 Cc.

Water2625 Cc.

Oil of Fennel..... 1 Cc.

Oil of Cloves..... 1 Cc.

Oil of Cassia..... 1 Cc.

Chloroform Water, a sufficient

quantity to make.....1000 Cc.

Mix the Lime with 1500 Cc. of Water and stir in the Cascara Sagrada, moistening the drug evenly and thoroughly. Dry the moist powder by exposure to a moderate heat until

air-dry. Mix the glycerin with 1125 Cc. of Water and moisten the Cascara Sagrada with 600 Cc. of this menstruum, *pack it lightly* in a cylindrical percolator and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and having covered the percolator macerate the mixture for 48 hours. Then allow the percolation to proceed slowly until the drug is exhausted, using first the remainder of the menstruum and afterwards Chloroform Water. Reserve the first 375 Cc. of the percolate and evaporate the remainder on a water bath, the weaker portion first, then the stronger, until it is reduced to 450 Cc., then add the reserved portion and continue the evaporation until the liquid measures 747 Cc. When cold add the Fluidglycerate and the volatile oils and mix thoroughly. Allow the preparation to stand for a few days, then decant the clear portion and strain the remainder.

FLUIDGLYCERATUM RHEI.

Fluidglycerate of Rhubarb.

Rhubarb, in No. 30 powder....1000 Gm.

To make..1000 Cc.

Follow the General Process for Fluidglycerates, using 500 Cc. of menstruum to moisten the ground drug.

SYRUPUS IODOTANNICUS.

Syrup of Iodo-tannin.

Iodine 2.7 Gm.

Tannic Acid..... 5.4 Gm.

Sugar 800.0 Gm.

Distilled Water, a sufficient

quantity to make.....1000.0 Cc.

Reduce the iodine to a powder and introduce it into a flask with the Tannic Acid and 450 Cc. of Distilled Water and then heat the mixture on a water bath, at a temperature not exceeding 50° C., agitating the flask from time to time until a drop of the liquid ceases to give a blue coloration with Starch T. S. Then add the Sugar and when this is dissolved remove the flask from the water bath, allow the Syrup to cool and finally add enough Distilled Water to make the product measure 1000 Cc.

Editorial Notes and Announcements

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All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

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4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

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GOLDEN WEDDING ANNIVERSARY OF A. PH. A. MEMBER.

Doctor and Mrs. John F. Hancock of Baltimore celebrated the fiftieth anniversary of their wedding recently. Congratulations and tokens were sent by their many friends in various parts of the country. Dr. and Mrs. Hancock were married February 6, 1862. The members of the A. Ph. A. extend their congratulations and good wishes.



A CORRECTION.

Readers of the February JOURNAL no doubt understood that "Frank H. Fredericks" on page 142 was a misprint for the name of Frank H. Freericks, the efficient Secretary of the American Druggists' Fire Insurance Co.

One of the inconveniences of linotype composition is that it requires the recasting of an entire line for every correction. In the last page proof of the February issue, the name of Mr. Freericks contained a defective letter, and the correction of this resulted in the introduction of the error mentioned.

The linotype artist has been properly disciplined, and the JOURNAL tenders its apologies to Mr. Freericks.

WEDGWOOD CLUB CELEBRATION.

The Wedgwood Club, a social organization of Baltimore druggists, celebrated its twelfth anniversary at Hotel Rennert, January 25th, and on the same occasion presented to Dr. John F. Hancock, the club historian, a handsome loving cup, in commemoration of the golden wedding anniversary of himself and Mrs. Hancock, which would occur on February 6th.

The club membership is limited to 30, and the president is selected in alphabetical rotation.

At its annual meetings the club usually entertains a guest and orator. The guest on the present occasion was Mr. Addison E. Millikin, who spoke upon "Things as They Should Be."



N. A. R. D. ACTIVITIES.

N. A. R. D. Notes, the very excellent official publication of the N. A. R. D., has always devoted a liberal amount of space to the work of the A. Ph. A. and its local branches. The latter association is now in a position to reciprocate, and expects to feature N. A. R. D. activities in the *JOURNAL* whenever the opportunity presents itself.

Editor Carr has kindly consented to prepare a monthly letter devoted to the principal N. A. R. D. activities, and these communications can therefore be relied upon as being both official and accurate. N. A. R. D. officers, committees and members generally are invited to utilize the *JOURNAL* for such announcements as they would like to present to members of the A. Ph. A.



THE SIXTIETH ANNUAL CONVENTION.

The headquarters of the Association during the Sixtieth Convention will be the Brown Palace Hotel, the same hostelry which housed the Association during its last meeting at Denver. Since that date, however, the hotel has been considerably modified in its interior arrangements, and has lately been refurnished and renovated throughout. The former store rooms on the ground floor have been converted into luxurious lounging rooms.

The convention will have for its exclusive use the large ball room for general sessions and section meetings; the ordinary, with a seating capacity of five hundred, for section and other meetings; a special room for Council meetings; the club room for conferences,

and a large room adjoining the hotel office for registration and State Headquarters.

The Metropole, located directly across the street, is under the same management as the Brown Palace. The Metropole is a fire-proof structure, and will afford one hundred rooms for the accommodation of guests.

Owing to its advantageous location, the city of Denver offers many opportunities for inexpensive side trips, either during or after the convention.

For one hundred people the transportation company will furnish a special train for a "Round the Circle" and Salt Lake City excursion. Part of the trip will be over a narrow-gauge division of the D. & R. G., which will take the party through some of the most interesting portions of mountain scenery to be found in the Rockies. Sufficient time will be afforded for viewing the most interesting portions of the scenery, and a stop of several days will be permitted at Salt Lake and City. Fare for the round trip will probably be in the neighborhood of twenty dollars.

The following round trip rates to Denver have been announced:

St. Louis	\$26.00
Chicago	30.00
New Orleans	46.00

Rates for cities farther east have not yet been named.



BRINGING THE ANNUAL CONVENTION TO THE BRANCH MEETING.

It will doubtless always be true that only a comparatively small proportion of the members of the A. Ph. A., or of any other national organization, will be able to attend any considerable number of the annual conventions.

In a sense, however, the annual convention may be brought to the local branch meetings by the reading and discussion of the convention papers and reports, or the more important of them, at the monthly sessions.

In these papers can be found matters of interest and improvement for everybody interested in any division of pharmaceutical work, scientific matters for those interested in scientific pharmacy, questions of legislation and education for those who are interested in these lines, besides hundreds of papers dealing with the everyday problems of the drug store.

In the same way the resolutions and ac-

tions of the annual N. A. R. D. convention can be made the subject of discussion and debate, and the benefits of that useful organization brought home to the local druggists.

The bound volumes of the past A. Ph. A. proceedings, moreover, are veritable mines of pharmaceutical wisdom from which in half an hour sufficient can be extracted to provide materials for an evening of profitable discussion.

If the A. Ph. A. is the post-graduate school of pharmacy, the Proceedings and JOURNAL are the text books, and the Branch meetings provide the lectures and recitations.

The man, or woman, who faithfully pursues the course of instruction will not fail to rank high as a pharmacist.

Matters of General Interest

AMERICAN CHEMICAL SOCIETY (DIVISION OF PHARMACEUTICAL CHEMISTRY.)

During the meeting of the American Chemical Society in Washington, D. C., December 27th to 30th, the Division of Pharmaceutical Chemistry held four very interesting sessions. The Chairman's address was upon "Our Advances and Retrogressions in Pharmaceutical Chemistry."

The following papers were presented:

A. B. Adams and J. M. Doran, Smoking Opium; Its Manufacture and Chemical Composition.

L. A. Brown, An Improved Method for Assay of Aromatic Sulphuric Acid.

Jos. P. Remington, Progress on the Work of Revision of the United States Pharmacopœia.

W. O. Emery, Estimation of Antipyrine in Acetanilide or Acetphenetidin Mixtures.

W. O. Emery, Estimation of Codeine in Acetanilid or Acetphenetidin Mixtures.

F. P. Dunnington, Some Unfamiliar Facts About Familiar Detergents.

R. Norris Shreve, Suggested Modifications of the U. S. P. Assay of Opium.

M. I. Wilbert, The Influence of Patents and Trade Marks on the United States Pharmacopœia.

E. O. Eaton, Estimating Small Quantities of Morphine in Mixtures.

A. G. Murray, Estimating Small Quantities of Nitrogen.

H. C. Hamilton, The Pharmacopœial Requirements for Cannabis Sativa.

H. C. Hamilton, Notes on Cannabis Indica.

A. D. Thorburn, The Estimation of Morphine in Cough Syrups.

C. M. Pence, The Bromine and Iodometric Methods for the Volumetric Estimation of Cresol.

J. B. Williams, The Estimation of Morphine in Pills, Tablets, etc.

Frederick J. Austin, Comments on Tests of the U. S. Pharmacopœia, Eighth Revision.

J. R. Rippetoe and R. Minor, Culoeynth U. S. P.

C. H. Briggs, Alcohol Assays of Pharmaceutical Preparations.

L. F. Kebler, Standards for Tincture of Ginger.

L. F. Kebler, Standard and Methods.

Atherton Seidell, A Bromine-Hydrobromic Acid Method for the Determination of Phenols.

The annual election resulted in the choice of the following officers:

Chairman, B. L. Murray; Vice-Chairman, L. A. Brown; Secretary, Frank R. Eldred; Members of Executive Committee, L. F. Kebler, Atherton Seidell.

Communications and Correspondence

All communications must be signed by their
Authors

MORE EDUCATIONAL NEEDS OF THE PHARMACIST.

The article on Educational Needs, by our friend, Dr. H. P. Hynson, in the first issue of the JOURNAL brought to mind several things that from the daily experience in the conduct of a pharmacy it would be well if our colleges placed more stress upon and taught the importance thereof to their students.

Whilst we agree with Dr. Hynson that a three-year course as outlined by him is most excellent, at the same time we believe there are other things perhaps even more important than dignity that should be impressed upon the students during that third year.

Although we admit a certain amount of

pride in one's calling is highly essential yet we do not believe, nor do we think Dr. Hynson would advocate that pride or dignity be carried to the extent exemplified by a clerk in our employ a few years ago, a graduate of the Department of Pharmacy of the University at Warsaw, Russia, who insisted that his own countrymen (of whom we had quite a few customers in our then location), remove their hats when they entered the store or addressed him, as he claimed was customary in his country when a plebeian (his term) approached a professional gentleman; of course we informed him that in "the good old U. S. A." we have no plebeians, but "a man's a man for a' that," and that the highest culture as we understand it in this country means the recognizing of a fellow being even the outcast and vile, if thereby we can lead them to better and nobler things.

Nor do we desire to criticise the work of the Syllabus Committee, as we realize they are of the best our profession affords, both as to college and practical men, but sometimes the man that stands on the outside sees or experiences things that are overlooked by those in the inner circle, hence we concluded to set forth as already stated some things that from our practical experience as a proprietor and nine years' membership of a Board of Pharmacy, we deem essential.

We would suggest that, in the adoption of a three-year term at our colleges, a chair on jurisprudence be established so as to instruct the students in the ordinary civil and business laws that are essential for every man to know who engages in a pursuit that has both professional and commercial requirements; not to the extent that would enable them to practice law, but to make them familiar with the simple facts of the laws governing business transactions, such as contracts, partnerships, corporations, real estate, etc, so they might know the relationship and responsibility of each individual in such transactions and the importance of engaging a good attorney in preparing the necessary papers therefor.

This should be followed by the laws especially pertaining to pharmacy, so that the student may understand his rights, privileges and responsibilities as a registered pharmacist, as well as assistant, when he or she becomes such. Poison Laws, their purport and necessity; Food and Drug Laws

(National and State), their necessity and usefulness, should also be included.

We remember whilst a member of the Maryland Board of Pharmacy asking on several occasions the purport of the Poison Laws, but few of the aspirants for registration ever attempted to answer the question, and of those few the usual method was to quote so much of the law as the applicant happened to remember, and out of possibly two hundred, ten only gave anything like an intelligent answer; the best answer received being possibly the following: "The purport of Poison Laws is to prevent either accidental or intentional poisoning, as also the formation of vicious habits and to aid in ferreting out crime."

Most young men appearing for examination have a vague idea that the Pharmacy Law is primarily to restrict the number of pharmacies and protect the pharmacist, which we know is perfectly erroneous, as no law that is enacted for any other purpose than to benefit the people as a whole, can ever stand the test of time under our system of government.

As to the Pure Food and Drug Laws, according to our observation, the young men seem to think these have been enacted solely for the purpose of compelling the pharmacist to purchase his preparations from the manufacturer, so as to be able to show a guarantee when the inspector happens to make a purchase from him; thereby entirely overlooking the fact that these laws sustain the upright, honest, conscientious pharmacist, as well as the similarly inclined manufacturer, in legitimately conducting his business.

In conclusion, we would say, "Teach our young men all they are now being taught, add to it Dr. Hynson's dignity course, but do not neglect instructing them in what we might term pharmaceutical jurisprudence."

LOUIS SCHULZE.

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THE NATIONAL TEMPERANCE BUREAU EXPLAINS THE PURPOSE OF THE KENYON AND SHEPPARD BILLS.

WASHINGTON, D. C., Feb. 9, 1912.

Hon. J. H. Beal, Scio, Ohio:

MY DEAR SIR AND FRIEND—My attention has just been called to an article in the New York Journal of Commerce, under date of February 6th, emanating from the National Wholesale Druggists' Association, and an

editorial in the same paper of February 7th, both pertaining to our interstate commerce bill originally introduced by Congressman Webb, of North Carolina, and now somewhat altered by the addition of Section Two, and introduced in the House by Mr. Shepard, of Texas, and in the Senate by Mr. Kenyon, of Iowa.

Both these articles are based upon a misapprehension of the bill. I am enclosing you herewith copies of the bills and a statement which was gotten out soon after the introduction of the bills last year, all of which will make the intention plain to you. I think that you will readily see that whoever wrote these articles was either thoroughly deceived about the character of the proposed legislation, or else is attempting to deceive the constituency of the drug trade and the readers of the *Journal of Commerce* with reference to the scope and policy of these bills. This ought not to go unchallenged and uncorrected, and General Superintendent Baker, who is in the city today and at our legislative offices, has given me your present address so that I could send this data to you with a view of suggesting that you take the matter up directly with the drug people and see that they are set right in this matter.

Of course I should be glad to furnish any further information required, but even if you had not had your large experience as a member of the legislature, I am sure that you would see from the reading of the data sent you that the information contained in this article and editorial is absolutely erroneous. In my judgment even the legitimate liquor trade cannot afford to fight these bills, and assuredly the drug trade of the country cannot afford to oppose measures which are simply directed against the bootleggers and blind tigers of the country and in no wise interfere with the lawful traffic in the different states. Very sincerely yours,

(Signed) EDWIN C. DINWIDDIE,
Legislative Superintendent.

FEBRUARY 12, 1912.

DEAR DOCTOR DINWIDDIE—I thank you for your communication of February 9, and accompanying copies of the Webb and Shepard Bills and comments on the same. I will take pleasure in publishing your letter and a copy of the bills in the *JOURNAL*, the official organ of the American Pharmaceutical Association.

I feel sure I am correct when I say that the large majority of pharmacists do not handle ethyl alcohol or liquids containing it except in a strictly legitimate and proper manner. The profession as a whole would very cheerfully do without ethyl alcohol altogether if it were possible to do so which, unfortunately, it is not. Thus far science has failed to discover anything which can serve as a perfect substitute for alcohol in all cases.

I have not yet had time to consider closely the two bills above referred to, but hope to do so in time for their publication in our March issue, with some brief comments of my own.

With best wishes, I remain,

Sincerely yours,

J. H. BEAL.

Council Business

COUNCIL LETTER NO. 12.

PHILADELPHIA, January 26, 1912.

At the Sixth Session of the Council for 1910-11, held August 17, 1911, it was decided that the Council elect a Committee of three to act with a similar committee of the American Medical Association, as a joint committee, to consider and formulate legislation affecting jointly the professions of medicine and pharmacy.

The reports of said joint committee shall be presented to both the A. Ph. A. and the A. M. A., but no formulation of legislation shall be taken as having received the endorsement of either association unless the same shall have been formally approved by resolution. (*A. Ph. A. Bulletin*, Nov., 1911, 589.)

To simplify the election by mail, each member of the Council is asked to nominate three committeemen, and those receiving the highest number of votes will be declared elected.

The following communication has been received and the request contained therein approved by the Committee on Finance:

To the Council of the American Pharmaceutical Association:

WHEREAS, The pharmacists of the public service are joining the American Pharmaceutical Association in considerable numbers, and the work which we have in hand for the advancement of the status of the pharmacists in our public service is much in need of funds for office expenses, such as stenographic work, printing and stamps, and such

expense is now being borne by the Chairman of the Committee.

We therefore move that an appropriation of \$250.00, or so much thereof as may be necessary, be made for such expenses of said Committee.

If we understand the matter correctly, over 130 new members of the Association have come in from the U. S. public service alone during the last twelve months, and this appropriation would be less than half of their membership fees for the first year. Other members from the public service are steadily coming in, and we feel sure that it will give the Association pleasure to make this appropriation to further aid in the advancement of the status of pharmacists in our public service. We believe that this appropriation will be to the direct advantage of the Association.

Much of the work that is being done is directly in behalf of the pharmaceutical service of the United States Army, and as the National Guard, under certain conditions and at certain times, becomes an actual part of the United States Army, the advancement of professional recognition of the pharmaceutical service of the army means better professional recognition of the pharmacists by the United States government in practically every community of the United States.

Active work is also being undertaken in behalf of the other branches of the public service. The army is particularly spoken of, as under the provisions of the Dick Bill the pharmacists of the National Guard are largely under the same regulations as the pharmacists of the United States Army.

GEORGE F. PAYNE.

Chairman of Committee on Status of Pharmacists in Government Service.

Motion No. 28 (Approval of Appropriation of \$250 for Expenses of Committee on Status of Pharmacists in Government Service). Do you approve of above request for appropriation of \$250 for expenses of Committee on Status of Pharmacists in Government Service?

J. W. ENGLAND,

Secretary of the Council.

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COUNCIL LETTER NO. 13.

PHILADELPHIA, February 10, 1912.

Motion No. 25 (Resolution on Charles E. Dohme), No. 26 (Charles L. Wright, a Life Member), No. 27 (Election of Members; applicants Nos. 82 to 127 inclusive), and No. 28 (Approval of Appropriation of \$250 for expenses of Committee on Status of Pharmacists in Government Service), have each received a majority of affirmative votes.

The request of the Druggists' Circular (Council Letter No. 10, 19) for permission "to publish a commentary on the various

formulas contained in the work N. F. somewhat as the authors of the dispensatories have published comments on the text of the Pharmacopœia, and to quote extensively from the book," has evoked discussion.

The following has been received (January 28, 1912), from Thomas D. McElhenie:

"In the matter of the letter of the Druggists' Circular I beg to say, the D. C. is a very reliable and well-edited journal and any comments they would publish would no doubt be correct and helpful. But there are several other good journals, and if the privilege of comment is given to any it should be made free for all journals.

N. A. R. D. Notes has had for a year or two some excellent work in that line on subjects taken at random by the director of the propaganda work, sometimes from the U. S. P. (VIII), and sometimes from the N. F. III.

I think that probably the best way to dispose of the question would be to confine the privilege of comment to our own Journal of the A. Ph. A., and have Dr. Beal run a page or two in each issue or perhaps several pages.

As this privilege was denied to Professor Remington for the U. S. D., it can hardly be made free to journals generally."

Your Secretary then wrote the Druggists' Circular for more specific information as to the extent of text it was desired to be used, adding that if the request as stated be granted it would be possible to publish all the formulas of the N. F. in full, with working directions and comments, and such privilege has been denied the dispensatories in the past.

The following reply was received (February 7, 1912), from the Druggists' Circular:

"We have thought that the Formulary would be more favorably regarded by druggists at large if there were more explanatory matter in its text. In this connection it occurred to us that we might be doing a good part by the druggists, the Formulary and ourselves by reprinting in the Circular the text of the formulas, with perhaps more or less of the accompanying matter, and adding thereto such comments as would make the pharmacy, history, therapeutics, etc., of the formula or preparation clearer to the general reader. We might take up the formulas one after the other and have our comments on them appear in an article to be published as a serial in the Circular. After the publication of this serial the question of reprinting it in book form could be taken up and disposed of separately on its merits. In other words, we propose to do for the text of the Formulary about what has been done in the dispensatories for the Pharmacopœia.

We trust that we have succeeded in making our meaning clear and hold ourselves in readiness to elucidate any point which may

still remain obscure. We thank you for your consideration of us in this matter, and hope that the Council will concur with us in the opinion that such a work as we have in contemplation will be for the general good."

The following letter has been received (February 9, 1912), from Otto Raubenheimer:

"I have carefully considered the request of The Druggists' Circular on p. 19, Council Letter No. 10, and have reached the conclusion that *this* and *similar* requests should *not* be granted.

If such a commentary to the N. F. is needed, then I believe it should be published by the A. Ph. A. itself, edited by some of the members and the Chairman of the N. F. Committee, *men who fully understand why the changes were made, men who are fitted to do this work and who do not merely take a guess at it.*

I believe that the new Journal of the A. Ph. A. would be an excellent medium to publish such a commentary in parts in every number.

In view of the fact that the present revision of the N. F. is almost completed, I think it would be well for the Council to adopt rules as to how far the text of the National Formulary can be abstracted by other works and other journals."

There is no motion before the Council on the request of the Druggists' Circular.

The nominations for the committee of three to act with a similar committee of the American Medical Association, to consider and formulate legislation affecting jointly the professions of medicine and pharmacy (C. I. No. 12, 24) have been numerous, and no one has received a majority of affirmative votes; hence it has been thought best to submit a list of the nominees as made, and call for a vote. Some of the members may feel better satisfied to have the list prepared in this way before them when voting. The list of nominees is as follows:

J. H. Beal, G. M. Beringer, C. Caspari, Jr., D. M. R. Culbreth, W. B. Day, E. G. Eberle, J. W. England, J. E. Hancock, H. E. Kalusowski, G. B. Kauffman, F. W. Meissner, J. P. Remington, Wm. S. Richardson, H. H. Rusby, J. C. Wallace, L. L. Walton, H. M. Whelpley, M. I. Wilbert, H. W. Wiley and F. J. Wulling.

Mr. England requests the withdrawal of his name from the list.

Each member of the Council is requested to vote for three committeemen from the above list, and those receiving the highest number of votes will be declared elected.

At the meeting of the Chicago Branch, A. Ph. A., held January 16, 1912, Prof. A. H.

Clark was elected as the Branch representative of the Council to succeed C. A. Storer.

Motion No. 29 (Election of Members). You are requested to vote on the following applications for membership:

No. 128. Morris Kantor, 489 East 169th St., New York, N. Y., rec. by Henry J. Goeckel and Wm. H. Wilson.

No. 129. Leon Lewis Cypress, 523 E. 138th St., New York, N. Y., rec. by Henry J. Goeckel and Wm. H. Wilson.

No. 130. Jeannot Hostmann, 1122 Hudson St., Hoboken, N. J., rec. by H. V. Army and H. M. Whelpley.

No. 131. John D. Walton, Sergt. Hosp. Corps, U. S. A., Fort San Pedro, Iloilo, Panay, P. I., rec. by Geo. C. Doran and J. W. England.

No. 132. Peter P. Franklin, Sergt. Hosp. Corps, U. S. Army, Columbus Barracks, O., rec. by L. D. Harp and G. Cushman.

No. 133. Levi Everett Folk, Sergt. Hosp. Corps, U. S. Army, Columbus Barracks, O., rec. by Gabriel Cushman and W. B. Day.

No. 134. Marius Dahl, Sgt. Hosp. Corps, U. S. Army, Columbus Barracks, O., rec. by L. D. Harp and G. Cushman.

No. 135. Eugene L. Maines, 281 Greene Ave., Brooklyn, N. Y., rec. by I. V. Stanley Stanislaus and G. H. Meeker.

No. 136. Quentin Johnstone Barker, Sgt. 1st Cl., H. C., Post Hospital, Fort William McKinley, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 137. Gust Frankan, Sgt. 1st Cl., H. C., Post Hospital, Fort William McKinley, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 138. Charles Noel Shaw, Sgt. 1st Cl., H. C., Post Hospital, Fort William McKinley, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 139. Aaron Freeman, Sgt. 1st Cl., H. C., Manila, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 140. Edward Oole, Sgt. 1st Cl., Post Hospital, Fort William McKinley, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 141. John Christopher Wheatcroft, Grayville, Ill., rec. by Wm. B. Day and Clyde M. Snow.

No. 142. Wilhelm Kornmuller, Sgt. Hosp. Corps, U. S. A., Letterman General Hospital, Presidio, San Francisco, Cal., rec. by Wm. D. Barbee and Clark L. Brown.

No. 143. Ludwig Werninghaus, Sgt. Hosp.

Corps, U. S. A., Letterman General Hospital, Presidio, San Francisco, Cal., rec. by Clark L. Brown and Leslie H. Stein.

No. 144. William A. Hickey, 1402 Pendleton Ave., St. Louis, Mo., rec. by Garrett S. Lohmann and J. W. Mackelden.

No. 145. Charles Brunstrom, 601 4th Ave., Moline, Ill., rec. by George W. Sohrbeck and Gus Lindvall.

No. 146. Alfred D'Annunzio, 638 9th Ave., New York, N. Y., rec. by Geo. C. Diekman and Carl P. Wimmer.

No. 147. John Scavo, 316 E. 14th St., New York, N. Y., rec. by Geo. C. Diekman and Carl P. Wimmer.

No. 148. Gustave J. Fonteyne, Sgt. 1st Cl., Hosp. Corps, U. S. Army, Corregidor, P. I., rec. by Wm. B. Day and J. W. England.

No. 149. Romanus A. LaGrindeur, Sgt. 1st Cl., Hosp. Corps, Military Hospital, Camp Connell, Samar, P. I., rec. by Wm. B. Day and J. W. England.

No. 150. Charles Gray Westbrook, Newbern, Tenn., rec. by Wm. R. White and F. L. Smith.

No. 151. Murry K. Pruyn, 1527 N. LaSalle St., Indianapolis, Ind., rec. by E. G. Eberhardt and Francis E. Bibbins.

No. 152. May Strawn, 111 W. 11th Ave., Columbus, Ohio, rec. by J. H. Beal and Geo. B. Kauffman.

No. 153. Frederick Albert Marsh, 327 Fort St., Nelsonville, Ohio, rec. by J. H. Beal and Clair A. Dye.

No. 154. Cyrus West Bowen, M. S., M. D., Broadway and Jackson, Brunswick, Mo., rec. by J. H. Beal and H. M. Whelpley.

No. 155. Warner A. Piel, 1802 Farnam St., Omaha, Neb., rec. by Charles R. Sherman and H. C. Lane.

No. 156. Edward Spease, 89 East Norwich Ave., Columbus, Ohio, rec. by J. H. Beal and Clair A. Dye.

No. 157. Ralph C. Homes, 1619 Summer St., Philadelphia, Pa., rec. by Paul S. Pittenger and Chas. E. Vanderkleed.

No. 158. Alfred Hudiburg, Cor. Main and Center Sts., Turlock, Cal., rec. by Byron F. Dawson and J. H. Beal.

No. 159. Herman Charlton Shuptrine, 229 Congress St., West Savannah, Ga., rec. by H. M. Whelpley and J. W. Mackelden.

No. 160. Charles Hugo Lowe, 761 Amsterdam Ave., New York, N. Y., rec. by Hugh Craig and C. A. Mayo.

No. 161. Charles Ehlers, 225 Calhoun St.,

Cincinnati, O., rec. by J. H. Beal and F. H. Freericks.

No. 162. Thomas B. Tanner, 7660 Hough Ave., Cleveland, O., rec. by Lewis C. Hopp and E. F. Cook.

No. 163. Robert L. McEnroe, Sgt. 1st Class, H. C., U. S. A., Davao, Mindanao, P. I., rec. by W. B. Day and J. W. England.

J. W. ENGLAND,
Secretary of the Council.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.



ENNO SANDER.

1822-1912.

Just fifteen days prior to the date of his ninetieth birthday, Enno Sander, Ex-President of the American Pharmaceutical Asso-

ciation, passed into the Great Beyond, after a brief illness.

Dr. Sander had a remarkable history. He was born at the village of Trinum, near Koethen, in Anhalt, Germany, on February 26, 1822, and was the son of Karl Frederick and Emilia (Palm) Sander. His education was obtained in the gymnasia of Zerbst, Eisleben and Koethen, and in the University of Berlin. He graduated from Halle in 1847, and fifty years later received the golden diploma from his Alma Mater.

In 1848, he was a member of the constitutional assembly of his native state, and in 1849 was assistant secretary of war in Baden. He was taken prisoner and sentenced to ten years of solitary confinement for his connection with the Baden revolution, but in 1850 was pardoned and exiled, coming to the United States.

In 1853, he opened a drug store in St. Louis, in 1854 a second, and in 1865 a third.

During the Civil War, he served as major and brigade quartermaster on the staff of Gen. John B. Gray, in St. Louis, Mo.

For thirty years (1865-94) he conducted an analytical laboratory in St. Louis.

He was one of the founders of the St. Louis College of Pharmacy. During 1871-74, he was professor of materia medica and botany, having reorganized the school after it had been closed for two years, and on February 26, 1902, it conferred upon him the title of emeritus professor of materia medica and botany in recognition of his services in the cause of pharmacy and collateral sciences, his eminent qualifications as a teacher and his influence in furthering the systematic study of materia medica as adapted to the needs of pharmacists.

American pharmacy owes Dr. Sander a debt of gratitude for having been largely instrumental in introducing into this country the study of systematic pharmacognosy, the value of which study for pharmacists was recognized at about the same time by two eminent men—Prof. John M. Maisch in the East, and Dr. Enno Sander in the West.

In his eightieth year, he erected a mineral water factory with all the latest improvements and an aerated water still of his own design, the best plant of its kind in the West. It was incorporated in 1894 as the Enno Sander Mineral Waer Co., with Dr. Sandner as president and treasurer. The output included Apollinaris, Bromine, Carlsbad, Spru-

del Carbonic, Frederickshall, Kissingen, Arsenated Iron, Garrod Spa, Lithia, Arseniated Lithium, Benzoated Lithium, Seltzer, Vichy, etc. He sold out this large and successful plant on February 1, 1912, but up to this time had given personal attention to its management.

He was an inventor also, patenting a medicine chest (1868), a chemical fire extinguisher (1869), and an aerated water still (1904).

Dr. Sander became a member of the American Pharmaceutical Association in 1858, being one of the first residents of Missouri to join the Association, the first Missourian to be elected President (1891), and the oldest member in age and service to the organization. He was a member of the St. Louis Academy of Science, having been its recording secretary for one year (1861), and its treasurer for forty-six years (1862-1908), also a member of the Historical and Chemical Societies of St. Louis, the American Medical Association, the Missouri State Pharmaceutical Association, the American Association for the Advancement of Science, the Association of Military Surgeons, the American Academy of Political and Social Science, the Merchants' Exchange of St. Louis, and an honorary member of the Alumni Association of the Maryland College of Pharmacy and of the Alumni Association of the St. Louis College of Pharmacy.

He added to the literature of pharmacy by writing valuable papers on mineral waters and other subjects, and these have been republished in the pharmaceutical journals of the European countries in the original text or translated.

On his eightieth birthday, February 26, 1902, Dr. Sander was tendered a banquet in St. Louis by his many pharmaceutical friends, and the occasion was a most memorable one. Ebert, Whelpley, Rohlfing, Meyer, Lamont, Claus, Good and many others paid eloquent tribute to the work and worth of this grand old man, or as he modestly put it "an eighty-year-old bachelor without a relative in the whole country," and letters of congratulations and best wishes were read from pharmaceutical friends of all sections.

Dr. Sander was a man of courtly bearing, high probity, scientific attainments and generous impulses. As Hallberg said ten years ago, "The cycle of time may make Enno Sander an octogenarian, but to me he is the

same urbane gentleman, gallant cavalier, erudite pharmacist, scholar and traveler I have had the pleasure of knowing for nearly a score of years." He devoted himself unselfishly to the happiness of others and lived a useful, well-spent life. What a deep and lasting satisfaction it must be to a man, in the evening of life, as the shadows grow deeper and deeper, to be able to look back upon the years that have passed and gone and recall the happy faces of those whose hearts he has made glad by loving deeds and words of encouragement.

Dr. Sander died at St. Luke's Hospital. Until a month ago, he made his home at the Washington Hotel. The funeral services were held in the Wagoner Chapel on Thursday, February 15, and the body was incinerated. Members and officers of the St. Louis College of Pharmacy and the many other organizations with which he was connected attended the funeral.

Memorial services were held at the St. Louis College of Pharmacy on February 14, and were largely attended, among those present being a delegation from the Chicago Veteran Druggists' Association, of which Dr. Sander was an honorary member.

J. W. E.



JOHN RICHARDS MAJOR.

John Richards Major, the oldest druggist of Washington, D. C., in time of service, among the retail druggists of this city, died suddenly of angina pectoris on January 28, 1912. He was seventy-four years old, a native of the District of Columbia and had occupied three drug stores in Washington since 1858, all within one city block. He was a charter member of the National College of Pharmacy, which institution held a special meeting on January 29, 1912, and passed appropriate resolutions. He was a life member of the American Pharmaceutical Association, having joined in 1873.

In 1863, Mr. Major was married to Miss Mary Eleanor Thomas, of Alexandria, Va. He is survived by his widow, a son, two daughters and one grandchild.

Personally, Mr. Major was a man of high character and lovable personality. A persistent worker, yet kind and gentle and sympathetic, he inspired confidence and won affection. He was one of the old school of pharmacists, living up to high pharmaceutical

ideals, demanding accuracy and absolute cleanliness in work of all those in his service.

He was buried from his late residence, 506 I Street, N. W., on January 30, 1912. The active pallbearers were Lyall Burrows, Murray Hackett, George W. Hurlebaus, and Dr. Virgin, all present or former clerks, and Carl Bostman and Edward Franzoni. J. W. E.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



NEW YORK BRANCH.

(January Meeting.)

A regular meeting of the New York Branch was held on the evening of January 8th, beginning at 9:30 o'clock. Acting-Chairman G. C. Dickman presided.

The minutes were read and approved, as was the report of the Treasurer.

The Secretary read the following report of the committee on education and legislation which was approved: "Your committee on education and legislation would respectfully report that at present there are no bills pending in the State legislature of interest to the trade; nor, is there any change in municipal regulations that would require our attention; but there has been submitted to the trade for discussion a tentative decision by the Board of Food and Drugs Inspection covering the importation and sale of crude and manufactured cocaine and opium and its derivatives.

"Our impression is that it is the desire of our association to limit as far as possible the illegitimate use of these preparations without unduly interfering with the use in skillful hands of products for the alleviation of pain

and human suffering. We can see nothing in this tentative draft that would meet with serious objections in the trade, except as to filing declarations as to who the ultimate consumer may be, this being impossible on the part of importers and others.

"There is a proposed amendment to the food and drugs act that was suggested by Representative Richardson, of Alabama, which, if carried into effect, would practically eliminate the sale of many proprietary articles, and its provisions would lead to an immense amount of blackmail. Our opinion is this bill is too sweeping in its character. The step is an ill-advised one and would work hardship and inconvenience to the general public, as well as to manufacturers and pharmacists.

"It must be borne in mind that a medicine containing limited amounts of opium derivatives is not necessarily either a poison or a habit-forming preparation. Limiting the dose might be a wise thing to do, but this amendment should be opposed, because it forms legislation which Congress has refused to enact, and which the Department of Agriculture has no power to make, and because it is unreasonable, unjust and misleading in that it calls a remedy poison and recognizes no distinction in doses, and especially should be modified as to codeine, because codeine is not a habit-forming drug in any sense of the word and is only one-tenth as powerful as morphine.

"Your committee attended a hearing before the commission on combustibles and explosives of Greater New York, and discussed the proposed set of new regulations. The commission was quite ready to adopt suggestions and it is believed that the revised regulations will be satisfactory to the drug trade."

For the committee on the progress of pharmacy, Otto Raubenheimer reviewed briefly the reports of some German analytical laboratories having to do with toilet preparations. He gave abstracts of the following articles: One in which it was suggested that the examination of pharmaceuticals be done in specified chemical laboratories rather than by the pharmacists (*Zeit. Ange. Chem.*); one in which the author reported that his analyses of liquor-habit "cures" led him to conclude that they were mostly bitters and emetics singly or combined and of little, if any, use (*Pharm. Zeit.*); "The Composition of Bismuth Sub-carbonate," "Alcohol and its Syno-

nymy" and some nostrum analyses (*Pharm. Zeit.*); "Quacks and Quackery" (*British Med. Journ.*); "Quack Analyses" (*Journ. A. M. A.*); and "The Stability of Digitalis Preparations" (*Journ. den Pharm.*). Mr. Raubenheimer called attention also to the "List of Important Medicaments" in the Journal of the American Medical Association, and a paper on "Concentrated and Fresh Infusions," by Stephenson (Proceedings, Brit. Pharm. Conf.). He mentioned the approaching Eighth International Congress of Applied Chemistry, several pamphlets from the federal department of agriculture, Knoll's *Pharmaka*, and the new edition of Hammarsten's *Physiological Chemistry*.

This report was discussed by Joseph Kahn and Chairman Diekman, and duly received.

C. A. Mayo presented a memorial of the late William Muir, and it was received for insertion in the minutes.

Some discussion of proposed National Formulary formulas followed, in the course of which J. L. Lascoff exhibited samples of a number of the proposed preparations. In connection therewith he said that the most satisfactory kieselguhr for filtering purposes is the sort known as calcined white. This substance gave results much superior to powdered talc as a filtering medium. He had found the formulas proposed for compound elixir of vanillin, elixir of almond, aqueous elixir of glycyrrhiza, and red elixir, quite satisfactory.

Joseph Weinstein told of his difficulty in getting uniform sorts of kieselguhr. He had found the dark-colored kind the best, if it was washed and dried before using. Mr. Weinstein also criticised the nomenclature of several of the proposed formulas as examples of bad Latin construction.

T. D. McElhenie spoke favorably of the prepared cellulose filtering medium suggested by H. A. B. Dunning, of Baltimore.

Mr. Raubenheimer had something to say in favor of the uniformity of cudbear-colored preparations, and of light-colored kieselguhr.

This being the annual meeting, an election of officers was held, and the following were chosen: President, G. C. Diekman; Vice-President, C. D. Bigelow; Treasurer, Joseph Weinstein; Secretary, Hugh Craig; Representative in the Council of the A. Ph. A., T. D. McElhenie; Committee Chairmen; Progress of Pharmacy, Otto Raubenheimer; Education and Legislation, T. P. Cook; Profes-

sional Relations, J. L. Lascoff; and Membership, C. A. Mayo.

HUGH CRAIG, Secretary.

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NEW YORK BRANCH.

(February Meeting.)

Because of the holiday, the attendance was far from gratifying at the meeting of the New York Branch of the American Pharmaceutical Association held February 12th.

After the report of Treasurer Joseph Weinstein had been read and received, J. L. Lascoff, Chairman of the committee on fraternal relations, made a brief report. Then there was a report for the committee on the progress of pharmacy by Oto Raubenheimer, Chairman. First he spoke of the municipal ordinance prohibiting the sale and use of preparations containing wood naphtha (methyl alcohol), referring in connection therewith to the Berlin poisoning and Dr. Hunt's work relative to the toxicity of wood naphtha. Among the published articles which were reviewed in the report were, one on the adulteration of saffron in Breslau; one on the untoward effect of new remedies; several on poisonous hair dyes; "Honey as a Corrigent for Potassium Iodide" (*Bull. gen. Therap.*); "Preparations of Tar Baths" (*Munch. Med. Woch.*); "Science and Technic in Chemical Industry" (*Zcit. ange. Chem.*); and "Incompatibilities of New Remedies" (*Pharm. Zeit.*). Several letters patent in chemistry were also reviewed.

The report was discussed by Messrs. Mansfield, Arny, De Jonge, Diekman, and Weinstein, and was duly received.

In a paper entitled "A Comparison of Ten Samples of Cudbear," Hugh Craig showed that there was considerable variation in the macroscopic appearance of the powdered cudbear of the market, and an equally marked variation in coloring powder. The ten samples experimented with had produced six different colors. Mr. Craig exhibited samples of the several lots of cudbear and the respective colored liquids.

The subject introduced in this paper was discussed by Messrs. Arny, Raubenheimer, von Oefele, Lascoff, and De Jonge; and the paper was received with the thanks of the branch.

Cornelius De Jonge exhibited samples of thirty-odd preparations proposed for admission to the National Formulary. The sug-

gested formulas for these had proved satisfactory with the following exceptions:

Compound Elixir of Sodium Salicylate—After standing twenty days this preparation had to be filtered; and had again formed a precipitate at the end of a month.

Antiseptic Solution of Pepsin—This clouded and in a short time assumed a pink tinge; seemingly it would not stay clear.

Liquid Extract of Cinchona—In the preparation of this an enormous quantity of menstruum was required. A white precipitate formed in the finished product.

Tincture of Opium with Saffron—The suggested formula was not workable because the sand-and-drug mass packed so closely that percolation was prevented. With the pharmacopeial method for tincture of opium the result was satisfactory; but the best results followed the use of extract of opium as directed in the British Pharmacopeia.

Tincture of Cactus—The process should be modified so as to apply to the drug preserved in alcohol, the usual form on the market.

Tincture of Fishberry—Percolation of this preparation is not practicable because of the close sedimentation of the ground drug; maceration is to be favored. The best results therapeutically and commercially were to be had with the following process; mix the ground drug with water and 10 percent. of acetic acid, and boil; allow to cool; add hot water; and boil again. When this liquid has cooled, add 10 percent. of alcohol.

Tincture of Larkspur—This preparation was commented upon in the same manner as the foregoing had been.

Tincture of Sabal and Santal—Unless 95 percent. alcohol was used as the menstruum there was a settling of a fatty layer in the liquid.

Salicylated Mixture of Iron—When the proposed formula was used a precipitate of salicylic acid formed which occupied one-fifth of the bulk of the preparation. By adding ammonium carbonate this precipitate was redissolved, the preparation remaining acid.

Nebulas—These were all cloudy, although it was directed to filter but one.

He suggested that the inunction be made in a warmed mortar.

John Roemer had experimented with the proposed formula for *Syrup of Iodo-Tannin* with very unsatisfactory results. A lot of the syrup made as directed contained iodine after being heated for several days, although

the metal was gradually being volatilized. He exhibited a sample of a syrup made as follows: The iodine was powdered and placed in the water over a water-bath; as the mixture was gradually heated, tannic acid was added in divided portions until the iodine was dissolved. More than twice the directed amount of acid was required, yet the syrup on cooling gave a blue coloration with starch; then more acid was added. He could see no reason for the arbitrary amount of iodine specified, or for its being driven off by heating. If the preparation was recognized it would be essential, he said, that provision be made for its assay.

Dr. von Oefele remarked that in the event of the recognition of aromatic solution of pepsin, an assay process for that preparation should be provided.

In a communication read by Secretary Craig, T. D. McElenie commented upon several of the proposed preparations as follows:

Liquid Petrox—The formula is satisfactory, the oil of lavender is more than a perfume, as, until it is added, the mixture is turbid.

Solid Petrox—Made as directed this preparation is granular and too soft for many uses. The addition of 15 or 20 parts of paraffin to replace oleic acid seemed advisable.

Iodine Petrox—The suggested formula was not practicable. The liquid would separate into two almost equal layers, the upper one cherry-red, the lower claret-colored.

Additional comment on the proposed formulas was made by Messrs. Diekman, Weinstein, and Raubenheimer.

Drs. von Oefele and Kessler briefly recounted their work during the past two years in connection with the treatment of carcinoma with selenium. This treatment has recently been exploited by Ehrlich, Wassermann, and others, and Drs. von Oefele and Kessler will relate their observations in detail at the meeting to be held March 11th.

HUGH CRAIG, Secretary.

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NASHVILLE BRANCH.

The Branch met in regular session January 11th at Furman Hall, Vanderbilt University, with President J. O. Burge in the chair.

The discussion of the new N. F. preparations was postponed until the next meeting and the subject of Emulsions was taken up.

Dr. J. O. Burge read a very interesting paper on this subject which provoked quite a good deal of discussion, in which Dr. E. A. Ruddiman, W. R. White, Dr. J. R. McDaniel and others participated.

Dr. Ruddiman claimed that in emulsions the proportions of gum and water must be definite, while Dr. Burge maintained that the proportion of gum and oil must be definite.

The best preservatives for emulsions were said to be small quantities of alcohol or brandy, 1 oz. to the pint, and chloroform water. W. R. White referred to a method by which benzin and kerosene could be emulsified.

W. R. WHITE, Secretary.

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DENVER BRANCH.

The January meeting of the Denver Branch of the A. Ph. A. was held Tuesday evening the 16th at the Traffic Club.

President Best called the meeting to order at 8:30 p. m. After the reading and approval of the minutes of the previous meeting the following were elected as officers for 1912:

John Best, President; L. B. Bridham, First Vice President; C. H. Skinner, Second Vice President; F. W. Nitardy, Secretary-Treasurer.

The by-laws proposed at the last meeting were read for final action and adopted by unanimous vote.

President Best then called on Prof. James Seymour, who exhibited about 200 stereopticon views of medicinal plants which proved a very instructive and interesting entertainment. At the end a few prescriptions were thrown on the screen which caused a general discussion of prescription writing and incompatibilities.

After a vote of thanks to Prof. Seymour the meeting adjourned.

F. W. NITARDY, Secretary.

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PHILADELPHIA BRANCH.

(January Meeting.)

The regular meeting of the Scientific Section of the Philadelphia Branch of the American Pharmaceutical Association was held January 2, 1912, at the College of Physicians, Chairman C. H. LaWall presiding. Owing to a misunderstanding as to the date of the meeting, and a delay on the part of the postal

authorities in the forwarding of the notices, the attendance was rather small.

There being no items of business which required attention, the President called upon the speaker of the evening, Dr. H. C. Wood, Jr., who presented a very interesting and instructive address on the Relation of Chemical Composition to Physiological Action.

The speaker began by saying that in his address he would deal chiefly in generalities rather than with a multiplication of specific facts, so that, while there were exceptions to many of the statements he might make, the facts he would give would be those based on general observations.

By means of a sketch on the blackboard he first pointed out the differences in the functions of the three separate sets of nerves that exist in the human body—the sensory, the vegetative and the motor nerves—and then proceeded to note the effects of the organic compounds, containing in their formulæ various characteristic groups, upon these several kinds of nerves.

The benzene derivatives, generally speaking, act upon the sensory nerves and the pyridine on the efferent nerves.

The germicidal power of phenol is apparently dependent upon the presence of the hydroxyl group in its molecule. All of the disinfectants of this series contain a hydroxyl group, with the single exception of benzoic acid, and in this case the antibacterial power appears to be dependent upon the acidity, for sodium benzoate is not germicidal.

More than one hydroxyl group, however, seems to lessen power, as phenol, resorcinol and pyrogallol form a descending series in potency. The introduction of methyl groups enhances the bactericidal power, as shown by cresol, thymol, etc.

The local anesthetic action of phenol appears to be increased by the introduction of an amido group, at least all of the powerful local anesthetics are compounds of the benzene ring, containing an amido group with an aliphatic radical. The amido group may be in the form of a simple compound or a complex nucleus, as in cocaine.

The pyridine derivatives act on the nerves which lead away from the spinal cord. Those containing oxygen act chiefly on the vegetative nerves—that is the nerves supplying organs necessary for life—while the non-oxygenated derivatives of this series act chiefly upon the nerves of the voluntary muscles.

Among the latter, those which contain aliphatic side groups such as coniine are the most powerful. Among the former, the most interesting are the so-called solanaceous alkaloids.

He pointed out the similarity in the structure of tropine and ecgonine, and the similarity in the physiological action of atropine and cocaine. Cocaine has a double effect, both as a benzene derivative upon the sensory nerves, and as a pyridine derivative upon the efferent nerves.

Open-chain (Aliphatic) compounds paralyze brain centres and to a lesser extent the spinal cord. Those containing chlorine have the most active powers. Compounds containing ammonia-like groups are safer and less depressant than those not containing them.

The address was warmly received and the author requested to put it in form of a paper for publication.

C. H. KIMBERLEY, Secretary.

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PHILADELPHIA BRANCH.

(February Meeting.)

The Scientific Section of the Philadelphia Branch of the A. Ph. A. was called to order on the evening of February 6th at 8 p. m., Chairman LaWall presiding.

The topic of discussion for the evening was a Symposium on the Inorganic Compounds of the U. S. P. with special reference to Assay and Tests. Chairman LaWall, in introducing the subject, talked upon the great importance of the Inorganics of the U. S. P., both as to the large number of substances included and to the great amount of these materials which enter into actual use. He spoke of the work of the Revision Committee and called attention to the changes to be made in placing the chemical formula in the Rubric instead of under the nomenclature. He also said that the directions for assay would be changed so that about a certain quantity would be accurately weighed instead of requiring, as at present, an exact quantity, and the requirements would be stated in such a way that the calculation of purity could be definitely made rather than requiring a positive amount of reagent to be used, and following this, a statement as to the number of cubic centimeters of standard solution required by one gram of pure material.

Dr. C. E. Smith, in discussing the Inor-

ganics of the present Pharmacopœia, said, in brief, that only tests that are positively reliable should be incorporated in the text, and that with such tests only one or two should be necessary.

He also criticised the present statements which require the absence of certain impurities, inasmuch as many tests are not sufficiently delicate to show minute traces of certain impurities. He also thinks that a definite time should be stated within which the characteristic tests should appear. He also criticised a number of tests such as the Gutzzeit and Bettendorf tests, due to the fact that the reagents used may contain a sufficient quantity of arsenic to increase the results of the initial test beyond its proper point, and states that the blank tests made should require a much larger quantity of the chemicals in order to obviate this error. With respect to the Bettendorf test he thinks it very much less delicate than the similar tests of other Pharmacopœias. He further criticised the fact that the limit of impurities is not graded with respect to the use to which the chemical in question is to be put, feeling that what would be a large impurity in one material might be considered as a negligible impurity in another, but the Pharmacopœia requires practically the same purity for both. He also mentioned substances in which the assay methods are unnecessary, since the purity requirements are so high: as examples of which, he mentioned boric acid, mercuric iodide, zinc sulphate, and others. He also called attention to the fact that when water of crystallization is present, the amount of impurity may be overshadowed by the increase in strength due to a partial loss of water of crystallization, and that therefore this matter should always be taken into consideration in testing such chemicals.

Mr. H. B. Meade also discussed the topic of the evening and supported the opinions of the preceding speaker, and further stated that as his opinion it would be sufficient in nearly all cases to merely set a limit to the amount of impurity rather than to require the substances to be free from such impurity. He also says that the grade of chemicals ordinarily supplied to the trade are of such high quality that the requirements of the Pharmacopœia are generally exceeded and that in many instances assays are therefore rather unnecessary.

Mr. J. Rosin spoke relative to the methods

of determinations of phosphoric acid and the Sanger-Fisher method of arsenic determination. The latter method he states is sufficiently delicate to determine as small an amount as one-half part per million. He continued his discussion criticising the methods of determining sodium hydroxide and substances of similar nature in which carbonates, etc., may be present, stating that the present methods are inadequate to accurately determine the amount of each present. He also mentioned a number of substances in which a standard of purity is given, but no methods of assaying stated, hence no means provided for the actual proving of such standards.

Others discussed the subject and very much valuable material was brought out.

The subject of the evening for the Branch meeting was purified caramel and the standardization of caramel solution. This subject was taken up by Mr. George M. Beringer and in the discussion which followed this paper very interesting material was given. It was the best discussion of caramel in its application to pharmacopœial substances that has been produced and should be of much benefit to pharmacists who make use of this substance.

C. H. KIMBERLEY, Secretary.

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CITY OF WASHINGTON BRANCH.

The regular meeting of the Branch was held at the National College of Pharmacy, January 17, 1912, with President Flemer in the chair.

Samples of most of the preparations proposed for the National Formulary, formulas of which were published in the November issue of the Bulletin, and of *Essentia Pepsini*, made according to the proposed formula, and several modifications, were presented by Dr. Hilton and Mr. Wilbert, for inspection, discussion, and criticism. Some of the samples were about fifteen months old, while others were very recently prepared.

The first of these preparations to be discussed was Elixir Amygdale Amarum. The consensus of opinion regarding this preparation was that the Vanillin odor and taste were overly prominent, producing an undesirable and rather offensive product. Upon motion duly made, and seconded, it was recommended to the Committee on the National

Formulary, that the vanillin be not included in this formula, or if it was deemed essential to have the vanillin therein, that the quantity thereof be reduced at least one-half.

Elixir Trium Bromidorum was then considered. It was generally contended that the National Formulary should not be burdened with this preparation, and others of its kind, as a physician desiring to prescribe a bromide, could readily write a prescription which would meet the individual requirements and necessities of the patient, far better than a stock preparation. Much adverse criticism was indulged in relative to the use of coloring matter in this preparation, it being claimed that this was done merely to make the finished product resemble numerous patent medicines containing bromides which are now on the market. Recommendation was therefor made to the Committee on the National Formulary that this preparation, Elixir Trium Bromidorum, be deleted from the National Formulary, but in the event it was deemed advisable to retain it, that the formula be so revised that no coloring be used.

The sample of Elixir Glycyrrhizæ Aquosum, which was next taken up, was but two months old, yet was in a high state of fermentation, and utterly useless for dispensing. Dr. Hilton explained that this preparation had been carried on a shelf in his laboratory ever since it had been made, and that the average temperature there was but 70 degrees, F. It was suggested that such a preparation would be unsuitable for summer use, and that in view of its instability, it would necessarily have to be freshly made each time it was dispensed. In the presence of other preparations, containing alcohol, its stability would be increased, and under those conditions might make a satisfactory preparation, but it was believed the alcoholic strength should be increased. Severe criticism was made of the use of the word "aquosum" to describe this preparation, contention being made that it was contrary to the meaning of the word "Elixir," as generally accepted by the pharmacists of this country. This part of the discussion led to the suggestion that a recommendation be made to the Committee on the National Formulary, that a definition for the term Elixir be made a part of that work. Recommendation was also made that the preparation, Elixir Glycyrrhizæ Aquosum, be not included in the National Formulary, but that in the event it be included, its alco-

holic strength be increased that a more stable product could be had.

Criticism of Elixir Rubrum was confined to its name exclusively. Recommendation was made that its name be changed to Elixir Aromaticum Rubrum. During the discussion of this preparation, Dr. Kebler suggested that it was not in keeping with the intent of the pure food and drugs act, to assign to a preparation a name suggested by its color only.

Two samples of Elixir Cardamomi Compositum were inspected, one sample having been prepared about fourteen months before while the other was a trifle over two months old. The first was of pleasant odor and taste, while the other had a disagreeable odor and a displeasing taste. Both samples were made from exactly the same ingredients, Dr. Hilton explained, but at different times. He invited attention to the difficulty in securing oil of cardamom for use in making this preparation; and after some further discussion, confined chiefly to the probable uses for this preparation, it was recommended to the Committee on the National Formulary that this preparation be deleted from the National Formulary, because of its small possibilities as a vehicle, the difficulty in securing oil of cardamom, and because of the instability of the finished product.

Elixir Auranti Amari was most severely criticised because of its high alcoholic percentage. Dr. Kebler remarked that it tasted and smelled precisely like some of the samples of Orange Bitters which were recently procured by the Department of Agriculture. Upon motion duly made and seconded, it was recommended that the Committee on the National Formulary not include this preparation in the National Formulary, because of its uselessness and worthlessness, and because of its high alcoholic strength.

Essentia Pepsini, of which many samples were presented, was then taken up for discussion. The samples were of the proposed National Formulary formula, and many modifications thereof. Some samples were clear, of good odor and taste; others were clouded, and of disagreeable odor and taste, while one had decomposed. Some of the samples, it was explained contained varying quantities of the favored flavorings, nutmeg, orange and vanillin. The branch finally recommended a formula championed by Dr. Hilton and Mr. Wilber, with one change, i. e., reduction in the quantity of the Tr. Sweet Orange Peel

from 18 cc. to 15 cc. The change from the use of wine to alcohol was commended. Further recommendation was made that the name of this preparation be changed to "Elixir Pepsini," with *Essentia Pepsini* and *Essence of Pepsin* as synonyms.

The merits of kieselguhr as a filtering agent were compared with those of talc. The experience of the members present showed that less than one-half the quantity of the former was required in comparison with the latter, that the finished preparation was clearer, and less liable to precipitation and to the formation of a sediment. It was also found that it was cheaper to use kieselguhr than talc.

A further recommendation was made to the Committee on the National Formulary that saccharin be not used in any preparation in the National Formulary which was to be frequently and periodically taken, in view of (1) the findings of the Referee Board of the Department of Agriculture that its use was detrimental to the health, and (2) the general action taken at the Richmond meeting.

The Secretary was directed to prepare and have printed a form of notification relative to meetings of the Branch, and present voucher to the Treasurer for reimbursement.

HENRY B. FLOYD, Secretary.



NEW ENGLAND BRANCH.

The first meeting of the New England Branch of the American Pharmaceutical Association since Prof. Nixon's election as president was held February 14, at Hotel Plaza, Boston.

In calling the meeting Prof. Nixon made it clear that in selecting the subject, Proposed National Formulary Additions, he intended that the pharmacists of New England should have an opportunity to make comments and criticisms that would receive recognition by the committee in charge.

The method of doing this was as follows: James F. Finneran, Fred A. Hubbard, Frank F. Ernst, Albert J. Brunelle, Carlton B. Wheeler and R. Albro Newton were each asked to try out carefully four formulas designated by the president and to bring samples. At the meeting each of these gentlemen were to make a detailed report. Then each person present was invited to give any information he might have as to the manufacture, use and value of the preparation or to offer any sug-

gestion as to its improvement. After this discussion if sufficient evidence had been offered so that a proper verdict could be rendered, then the members were to vote as to whether they would endorse such formula or recommend its rejection and this vote was to be sent to Chairman C. Lewis Diehl as the vote of the Branch.

In order to get a full expression of opinion the members of the Alumni Association of the Massachusetts College of Pharmacy were invited to attend the meeting and take part in the proceedings.

The plan worked to a T and about sixty attended, representing a large number of retail stores and societies.

James F. Finneran reported on:

Tincture Saw Palmetto and Santal.
Compound Gargle of Guaiac.
Aromatic Oil Spray.
Salicylated Mixture of Iron.

He reported trouble with the Iron Mixture and no vote was taken on it. Voted to endorse Aromatic Oil Spray and Compound Guaiac Gargle. Voted to recommend designation of fresh Palmetto Berries in Tincture Palmetto and Santal and to recommend chilling to remove excess of fixed oil.

Carlton B. Wheeler reported on:

Compound Menthol Spray.
Syrup Ammonium Hypophosphite.
Syrup Poppy Capsules.
Lassar's Stronger Resorcin Paste.

Voted to endorse the Spray, Syrup Poppy Capsules and Paste.

Voted to recommend that Syrup Ammonium Hypophosphite be unflavored or if flavored, not with a "synthetic" like Vanillin.

Albert J. Brunelle reported on:

Compound Elixir Vanillin.
Compound Spirit Vanillin.
Elixir Bitter Orange.
Compound Spirit Cardamom.

Voted to recommend in Compound Elixir Vanillin that Spirit Vanillin be reduced one-half, and that the directions for compounding be as follows: Mix liquids except oils (spirit), then triturate oils (spirit) with Kieselguhr and add to mixed liquids in portions, shaking after each addition. Filter.

Voted that above directions apply also to Elixir Bitter Orange, formula for which was

endorsed. Voted to endorse formulas for both Spirits.

Frank F. Ernst reported on:

Compound Elixir Almond.
Aqueous Elixir Licorice.
Elixir Three Bromides.
Antiseptic Solution Pepsin.

Voted to endorse Compound Elixir Almond and Elixir Three Bromides and to recommend rejection of Aqueous Elixir Licorice and Antiseptic Solution Pepsin. It was the unanimous opinion that these latter two were very unsatisfactory from every point of view.

Fred A. Hubbard reported on:

Elixir Formates.
Compound Elixir Formates.
Compound Elixir Cardamom.
Glycerite Lubricans.

No action taken on the Formate Elixirs. Voted to endorse Compound Elixir Cardamom and to recommend that the Spirit be triturated with the Kieselguhr and added to the mixed liquids in portions, then filtering. On suggestion of physicians present it was voted that formula for Lubricating Glycerite be omitted as such preparations were not efficient for the purposes intended.

R. Albro Newton reported on:

Menthol Inunction.
Compound Menthol Inunction.
Compound Elixir Sodium Salicylate.
Aromatic Castor Oil.

Voted to endorse these formulas.

Quite a number of pharmacists have tried all the formulas as they have been published and nearly all say that Kieselguhr or Infusorial Earth is very much better than Talc or the other common powders as a filtering agent.

Voted that at the next meeting each member invite a physician to accompany him and that this vote be incorporated in the notice of the meeting.

The meeting was in many ways the most interesting ever held by the Branch and several new members were enrolled because of it.

R. ALBRO NEWTON, Secretary.

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PITTSBURG BRANCH.

The Pittsburg Branch of the A. Ph. A. held a meeting on Tuesday evening, February 13th, one of the gratifying features of which was the number of pharmacy students

that participated in the proceedings. The following communication was read from Prof. E. Fullerton Cook, of Philadelphia, conveying valuable information.

"On page 4 of January issue of the Western Pennsylvania Retail Druggist, I notice request for information from the N. F. Committee concerning the reason for 'Alcohol 1 cc. in the formula for Compound Spirit Cardamon. This is an error made by the party who copied the formula for the N. F. Bulletin. The ingredient should be, 'Anethol 1 c.c.' The formula is correctly printed in the American Journal of Pharmacy of November, 1911.

"If Compound Elixir of Vanillin is not artificially colored it will darken quickly, due to the action of light upon Vanillin. The Committee thought it best to provide a uniform color from the first. With regard to the keeping quality of the low alcoholic elixirs the presence of oils which possess powerful prevention properties must not be overlooked. The Committee's samples have successfully withstood two, and in some cases, three years of keeping without fermentation."

These explanations from Prof. Cook were greatly appreciated and accepted as satisfactory.

Another interesting communication from Mr. John C. Owsley, Sharon, Pa., was read in reply to information given him from the Question Box of this Branch, covering the manner of combining Agar-Agar with Cascara Sagrada so as to render it practically tasteless. Mr. Owsley said: "For some time past I have sold a preparation known as Regulín, prepared in Germany, and which is nothing more than Agar-Agar treated with some form of Cascara Sagrada, dried, packed in two-ounce containers and retailed for fifty cents. Recently my attention has been called to a cereal on the market which is composed of crushed whole wheat and flaxseed and retailed for twenty-five cents a package."

Dr. Leonard K. Darbaker presented a valuable and instructive paper concerning some "U. S. P. Herbs Used by the Indians" which gave evidence of much patient research, and covered the history of many present-day commonly-used herbs. Dr. Darbaker was awarded an appreciative vote of thanks.

A spirited debate upon the topic "Are Fraternities of Advantage to the Student?" was one of the strong features of the evening

program, and was admirably handled by three students and an alumnus. The affirmative was maintained by A. H. Campbell and W. V. Kerwin; the negative by R. D. Tea and Dr. J. H. Wurdack. The points brought out by the affirmative were: That the quiz, which is a strong feature of every fraternity gathering, was a great advantage; the restraining of weak members from formation of evil habits; the furnishing of harmless amusements in the fraternity house keeps the student from going outside and forming questionable habits; the facilities for comparing notes with fellow students in the same studies; the rule of forbidding the use of liquors in the fraternity house saves many students from the drinking habit; but the best evidence of their good influence is found in the fact that fraternity members are generally among the first in their classes, and when one is found to be deficient in his studies he is found to be a laggard in his fraternity standing as well.

In support of its position the negative contingent claimed that students who fail to become members of a fraternity are given but little consideration by their fellows; that feuds are engendered; that non-members are excluded from participation in athletics and sports; that in class entertainments the non-frats are ignored; opposing fraternities bring about a spirit of rivalry, not always with good results; one instance was cited in which a young member fell into intemperate habits because of the bad influence of his fellow members; too much entertainment in the fraternity house; too many inducements presented to entice students away from needed study periods; if left to themselves students would be less often tempted to neglect their studies to indulge in frivolous amusements; fraternity boys are often led into the false idea that causes a sense of security in safely emerging from examinations, an error often discovered when it is too late to be mended. The feeling that as fraternity members they will be protected always, and under all circumstances, results in giving both the individual and his fraternity a bad reputation.

Dr. Geo. W. Kutscher followed the debate with a general summing up, during which he took the ground that the fraternity is always a student's best friend, and if he is not a

good student, he will never be found to be any honor to his fraternity. He said that the evils pointed out by the negative speakers were due to the natural bent of the individual, and not to his fraternity affiliation. He claimed that instances of betterment in students by their fraternity were far in excess of any isolated instances of the reverse.

The discussion of the proposed new formulas for the National Formulary was then taken up. Dr. Koch suggested that the formula for Elixir Formatum should be amended to read:

Potassium Bicarbonate	60 Gm.
Monohydrated Sodium Carbonate	36 Gm.
Formic Acid	225 c.c.
Aromatic Elixir, q. s. ad.....	1000 c.c.

It was resolved that the suggestion advanced by Dr. Emanuel that 1 gm. of tragacanth be added to the formula for Gargarysma Guaiac Compound be amended to read that it is the sense of this Branch that 10 percent of tragacanth be added to this formula. Also that the Secretary submit this action to the N. F. Committee.

Dr. Saalbach suggested that for the same reason given for the artificial coloring of Compound Elixir Vanillin, Aromatic Castor Oil should be similarly treated, and it was resolved that such recommendation be made, and that sufficient alkanet root to produce a handsome red color be provided for in the formula for Aromatic Castor Oil.

A number of samples of N. F. preparations were exhibited by the students to whom had been assigned the duty of preparing them, which were found to be quite creditable, and the young men were severally tendered a vote of thanks for their interest in the work. Liquor Pepsini Antisepticus was shown to assume a cloudy appearance upon standing, although perfectly clear when first filtered. Mistura Ferri Salicylatis throws down an ugly precipitate under the N. F. directions for its preparation, and a committee consisting of Drs. Saalbach, Wurdack and Kutscher was appointed to experiment with a view to finding the causes and a means of remedying the condition.

B. E. PRITCHARD, Secretary.

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The Journal of the American Pharmaceutical Association

Volume I

APRIL, 1912

No. 4

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, \$3.00 per annum, within the United States. To Canada, \$3.35. To other foreign countries in Postal Union, \$3.50 per annum. Single copies, twenty-five cents.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

Papers and communications for insertion in the JOURNAL should be sent to the Editor, James H. Beal, Scio, Ohio. Subscriptions should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

THE PARCELS-POST.

IT is an unfortunate characteristic of human nature that a very considerable number of men can be brought to favor almost any political or economic doctrine if they are persistently bombarded with arguments in its favor.

Even the constant iteration of a given doctrine, without any accompanying arguments or evidence, will at length produce a large number of converts, especially if it be judiciously intimated that the triumph of that doctrine will in some way inure to the profit of the persons appealed to.

If, as commonly happens, some men of more or less public prominence can be induced to lend their names to the movement then many other ordinarily reasonable men at once assume that the movement has a substantial basis of reason, and without further thought or investigation lend it their own sanction and support.

Who are the Special Champions of the Parcels-Post?—A brief investigation will disclose the fact that the demand for parcels-post originated with those who had something to sell, and who for either good or bad reasons were not satisfied with existing methods of transportation. There cannot be the slightest doubt that the mail order houses have been first and foremost in the advocacy of this innovation in the mail service, that they are strenuously urging its adoption, and that they have been and still are expending many thousands of dollars in maintaining an energetic propaganda in its favor.

The movement did *not* originate with the consumers or purchasers of these goods, and these did not join in it until they had been persuaded that their interests would be greatly served if the movement should be successful.

Of course the propaganda has been skillfully framed, like every other piece of political shenanigan, to simulate a movement for the general good, inspired by pure philanthropy and financed by those who claim to hold their fortunes in trust for the welfare of humanity.

One hesitates to impugn the motives of the professed altruist, but the very palpable benefits to accrue to the mail order houses through the inauguration of a parcels-post and their lavish expenditure of money in the effort to secure it is as much calculated to arouse suspicion as is a wobbly wooden leg in a dry township.

How Parcels-Post Sentiment is Manufactured to Order.—In a publication devoted to the interests of the mail order houses—for the business has already developed to a point where it is necessary to have its special organs—it is stated that these establishments regularly keep in the field a corps of traveling representatives to visit the rural districts, and while distributing catalogs and soliciting orders are instructed to take part in local social affairs by helping to organize social and literary societies, farmers' "uplift clubs," etc., etc.

"Every one of these special salesmen is furnished with an outlined campaign for both social and regular work, which he is compelled to carry out in the face of the strongest kind of rural competition."

All of these devices are merely "different links in the same string of sausage," the parading of hearts bursting with affection for the interests of the dear "*common pec-pul*," and the bounteous distribution of that favorite confection of the American voter, buncombe pudding with plenty of flapdoodle sauce.

It is these same agents who throng the farmers' institutes lecturing upon the "social uplift," but whose hoisting efforts are confined mainly to boosting parcels-post in the interests of those who pay their salaries.

Are the Parcels-Posters Frank in Their Statements?—A witness in a court of law swears not only to tell the truth and nothing but the truth, but to tell the whole truth. Constructively it is as much a perjury to suppress a material portion of the truth as to make a positive misstatement of fact.

With this thought in mind consider the following statement of an influential magazine which advocates parcels-post:

"Why can the Englishman send a package weighing 11 pounds from one end of his country to the other, while the American can mail nothing over four pounds, and must pay 64 cents for that?"

The facts suppressed are that the combined area of the British Isles is about equal to the area of three average American states, and that the British post serves a population which averages approximately 350 inhabitants to the square mile, while the U. S. post serves a population which averages about 25 inhabitants to the square mile. The obvious intent of the statement quoted is to convey the impression that the American citizen is paying more for the same service than the British citizen, whereas in proportion to the average length of haul the U. S. post is now as cheap if not cheaper than the British post.

The Express-Company Argument.—It is asserted, with almost damnable iteration, that the country is driven to the expedient of parcels-post to protect itself against the extortion of the express companies and other transportation agencies.

That the express companies and railroads have more than once been guilty of

extortion will be admitted by most of their patrons, and hence this assertion at first looks like an argument. But let us see:

By its authority to regulate interstate commerce, the Federal Congress has absolute power to prevent extortion on the part of the transportation companies. Why are the parcels-post advocates not in the ranks of those who are demanding that the government shall exercise this power? Why should the government enter upon the dangerous and costly experiment of parcels-post as a corrective of a condition that Congress can correct by the simple expedient of saying to the express companies and railroads, "Thou shalt not"?

The sarcasm of the argument that the change will punish the railroads becomes apparent when we consider that the change means the transferring of merchandise from the freight train which pays the lowest rate per ton mile, and from the express train, the next lowest, to the mail train which pays the highest rate per ton mile; and that the railroad company will be saved the expense of handling, and have the advantage of dealing only with the Federal Government, always a liberal paymaster, instead of dealing with tens of thousands of individual shippers who are constantly clamoring for better service and lower rates.

Effect on the Small Tradesman.—One effect of a parcels-post stands out with such distinction that only those who are infatuated can fail to see it, namely, that the introduction of this system means certain and irreparable injury to the small tradesmen of the small community, to those dependent upon him, and consequently to the community itself.

Some are persuaded, or say they are, that parcels-post will not really injure the local dealer to any appreciable extent, because the increased trade of the mail order houses will be largely due to the stimulation of the farmer's commercial instinct, and to the creation of a demand for articles which the retail dealer does not carry in stock.

Upon this point the statements of the mail order people certainly ought to be of some weight as evidence. Speaking of the methods to secure business a mail order house publication says:

"The mail order houses are going after business with more determination and a stronger selling force than ever before. They have reached the point where they find it necessary to meet rural competition by resorting to personal work in each community."

If this declaration does not breathe the spirit of competition with local dealers, then we are at fault in its interpretation.

That dealers located in the villages and small towns should take their chance in the race for trade with those who have abundant capital and are located in the large centers of population is conceded, but it should be a fair race and no favors, i. e., the dealers in the large centers should not be aided by government subvention, as parcels-post would be in effect.

It may be asked, if the small merchant cannot meet the competition of the mail order houses under the parcels-post, how can he meet it when express and freight rates are reduced to reasonable figures?

The two cases are not at all parallel. Freight and express rates will never be reduced below the actual cost of carriage plus a reasonable margin of profit to the carrier.

The small tradesman is not asking for any exercise of governmental authority to protect him in his business, he is only protesting against its exercise to crush him by giving his large competitor certain decided advantages in the way of transportation.

Can the Local Dealer Extract Profit from Parcels-Post?—But the local dealer is to have the same privilege of sending and receiving goods through the mails. Is this not giving him the same chance as the great mail order concern? In form, yes; in substance, no.

The opportunity offered to all is one which, in the nature of things, can be utilized only by the few who are located at centers of population, and can command the capital necessary to establish an extensive business organization, to employ high priced business experts, and to do the various other things that big business can do, but which little business cannot.

It would be just as reasonable to say that the exemption of railroads from taxation would be fair to all, because any man might build a railroad if he wanted to, and thus have an investment free from tax.

The claim that parcels-post will benefit the local retailer is at best but graveyard whistling to keep up courage. If it were true then the mail order people who are spending thousands of dollars in a propaganda for something which will only help their competitors, are greatly in need of enlightenment.

Even the advocates of the system admit its possible dangers, by their concession to limit it to "rural free delivery routes."

The success of parcels-post with this limitation we fear would only once more illustrate the story of the camel which being permitted to put his head into his master's tent, ended by thrusting his whole body under the canvas.

The idea that the small retailer will be able to extract any material benefit from parcels-post is a mirage that will disappear in vapor as it is approached.

The Farmer's Part in Parcels-Post.—That the farmer has been enlisted in the movement by an appeal to his self interest, and by persuading him that he has everything to gain and nothing to lose from parcels-post is evident to any one who has taken the pains to study the history of the movement.

But if the farmer is persuaded that the villages and towns of his neighborhood can be destroyed without increasing his taxes, decreasing the value of his lands and injuriously affecting his interests generally—if he believes that a local market for his products can be preserved when he is to do all of the selling and none of the buying therein, then the honest agriculturist is destined to experience one of the shocks that always come to those who collide with the logic of circumstance.

The Milk in the Mail Order Cocoon.—While there may be other reasons as well, there is strong ground for the opinion that the mail order interests desire parcels-post because it will enable them to ship their goods long distances for less than the cost of carriage, instead of paying in proportion to the length of haul as they would have to do with an express company.

The fact that the Postal Department depends upon the profit made on short haul matter to cover the deficit on long haul mail matter may not be greatly objectionable when the mails are confined to letters and to legitimate newspapers and magazines, but it is fundamentally unjust to apply the same rule to freight. Either the short haul people will pay more than the service is worth, or the long haul people will have their goods freighted for less than the service is worth.

The government pays the railroads on the basis of the ton mile for matter transported in its mail cars. Why should not those who ship merchandise by mail be made to pay upon the same basis?

Such a modification of the parcels-post—i. e., to make the charge proportional to the character of the merchandise, its weight and distance carried—would be strictly just, but this would destroy the very thing for which the parcels-posters are striving, namely, *to have their long haul merchandise carried for less than the cost of carriage, and consequently for less than any private corporation would carry it for.*

This is the milk in the parcels-post cocoanut, and any amendment of the plan which would prevent the "beating" of the government by the mail order concerns and compel them to pay for the actual cost of the service rendered, would, so far as these pure and undefiled patriots are concerned, kill the parcels-post project too dead for decortication.

J. H. BEAL.



LORD LISTER.

A FEW short weeks ago, England's famous church, Westminster Abbey, received within its historic and venerable walls the mortal remains of perhaps the greatest hero, if heroism may be construed in the light of the greatest service, that England had ever known. "Peace hath her victories no less renowned than war." Such victories for the benefit of mankind Joseph, Baron Lister had won, and won for himself undying fame. Greater honors from a grateful king and country were conferred upon him than upon any medical man in the history of the country. He was made a Lord and given the right to sit amongst England's greatest noblemen in London's famous Parliament House.

Born in 1827, in the comparative infancy of modern science, especially of the healing art, he was spared to a ripe old age that he might with his own eyes see the benefits he had conferred upon suffering humanity. Born in the village of Upton, in the county of Essex, near London, he was an illustration of the fact that great men spring from the ranks of the moderately well-to-do and intelligent. His father was an optician of some note and was able to give his son an education which terminated in graduation in Medicine and Surgery at the London University. At thirty-five he was a teacher of surgery at the Glasgow University and began his investigations leading to his promulgating, about 1869, his antiseptic treatment of wounds and surgical operations. Due chiefly to his methods, the cavities of the body, especially of the abdomen, have been invaded by the surgeon's knife with such triumphant results as to revolutionize surgical practice.

Pharmacists are chiefly interested in the great number of antiseptic dressings which the methods of Lister brought into use, and of which they became the only purveyors and in many instances the manufacturers.

Lister's example of spotless cleanliness has pervaded all our daily lives, military, business and domestic. Every hospital is as a temple to his memory, every soldier's knapsack contains a package of his dressing.

Millions of lives have been saved because he lived. "Peace to his ashes."

THOS. LATHAM.

Contributed and Selected

ADVANCEMENT OF PROFESSIONAL STANDARDS THE RATIONAL MEANS FOR THE ADVANCEMENT OF THE INTERESTS OF PHAMACISTS.

G. H. MEEKER, PHAR. D., LL. D.

This paper is primarily a plea for the frank and unreserved recognition of the real conditions which confront pharmacists; and for an effort on the part of the American Pharmaceutical Association to encourage a movement to compel all young men who are about to enter the profession of pharmacy to be so thoroughly equipped in its scientific branches—especially chemic and pharmaceutic technology; general, pharmacognistic, sanitary, clinic, physiologic and research laboratory methods; drug inspection; and bacteriology—that the *laboratory of the pharmacist* shall expand from its now comparatively limited field of dispensing and minor preparations to that truly comprehensive abode of scientific pharmacy which is its legitimate and profitable goal—in which the pharmacist will be equally competent to exercise an intelligent control over the manufacturer; to act as the diagnostic as well as the dispensing adjunct of the physician; or to serve the general chemic, as well as pharmaceutic, needs of the public at large. Secondly, there is the hope that practicing pharmacists may come to perceive the advantages of taking into their employ only those young men who have had the benefit of comprehensive professional training. Finally, the paper dwells upon certain topics which are collateral to the main issues.

Throughout the series of efforts that are being made by the well-wishers of the profession for the advancement of the material advantages of pharmacists, one observes a lack of unanimity of opinion as to the proper mode of procedure, and could well be impressed with the thought that there is a great deal of groping in the dark. If efforts were really being directed upon fundamentally correct lines, such lack of unanimity of purpose should not be observed. It is submitted here that true progress for the pharmacist is only to be found through first recognizing the pharmacist's own shortcomings and then correcting them. Such a procedure requires courage, for the pharmacist is only human, and his natural self love would indicate that he should welcome all suggestions that he himself is thoroughly praiseworthy and that the ills from which he feels he suffers come to him exclusively because of external conditions. Conversely, he resents any imputation against his own complete rectitude. The indefinite character of the work being done for the advancement of pharmacists really arises from the fact that he and his well-wishers are loath to attack the problem from the radical standpoint of unreserved self-analysis. If, however, the pharmacist but consider briefly the experience of the medical profession in this regard,

he will see how advantageous it has been to that profession to attack their professional problems from such a standpoint.

It is only a comparatively few years ago that practically anyone could lawfully practice medicine, and many of the medical practitioners had obtained their knowledge of medicine merely through having been handy men about physicians' offices. In those days the mere fact that a man was a practitioner of medicine brought him no particular public respect. Those men in the profession who were greatly respected achieved the dignity because of their own merits and not because of the fact that they belonged to a profession which in itself commanded respect. The fact that medical men have raised themselves to a position where the mere fact of being a licensed medical practitioner commands the esteem of the public, is due to the fact that in these days a man cannot become a medical practitioner except he has complied with the conditions of such a difficult series of preliminary requirements as render it impossible for an ignoramus or a gross incompetent to occupy a place in the profession. This state of affairs has been brought about primarily through the selfishness of physicians. The physicians who practiced under the former conditions, seeing how easy it was numerically to overload the profession, and suffering from the false pretensions of unworthy practitioners, sought from such selfish reasons to reduce the number and improve the quality of those practicing medicine by imposing difficult conditions upon such as were about to enter the profession. The conditions of medical licensure have been so increased that today, as a rule, a man requires about four times as much preliminary education in order to become a student of medicine, as is required from those who desire to become students of pharmacy; and the standard education in medical colleges embraces about twice as much collegiate work as is demanded of students of pharmacy. The result of all of this has been to minimize the number of those who can enter the profession of medicine; vastly to increase their efficiency; and resultantly to command public respect and increased fees for the profession generally.

The present medical standards are, however, not the final standards, as the progress is toward still more difficult standards; and there is today a large and influential element in the medical profession which is laboring to the end that only college graduates in arts and sciences shall be eligible to become students of medicine, and that the medical courses themselves shall be of five years' duration instead of four. It is asserted with no fear of successful contradiction, that pharmacists would be taking the very best course for their own advancement should they follow this example of their medical brethren. If the pharmacists of America would consult their own selfish interests—remember that they themselves are already within the folds of the profession, and would, of course, so remain—and would bend their efforts towards influencing state boards of pharmaceutical examiners notably to advance their requirements of preliminary education, of pharmaceutic education, and of state board examinations, they would at once minimize the number of men entering the profession of pharmacy; and would insure that those who do enter the profession would be of such a character as universally to deserve and command the public respect and support. The program adopted should admit only high school graduates to schools of pharmacy; and the courses of instruction in pharmaceutic colleges should at

least equal three college years of eight months full time each, which is the standard of dental colleges. State board examinations should correspond. It is very likely that any standards for entering the profession of pharmacy which would fall short of the standards thus briefly stated, would be ineffective for producing satisfactory results in the premises.

In the foregoing, consideration has only been given to the interests of pharmacists. In all such programs, however, it must never be forgotten that the first interests are the public interests. But the proposed program fully conserves the public interests; and, hence, fulfills the basic condition. As a matter of fact, under present circumstances the public interests are not conserved by pharmacists. In the United States there now exist State pharmaceutical licensing acts and State and Federal pure drug laws which can only logically be interpreted to mean that when a licensed pharmacist vends drugs to a purchaser, the purchaser has the right to assume a contract between himself and the pharmacist, in which contract the pharmacist agrees to vend only such drugs as he knows *of his own knowledge* to comply with the pure drug laws. The pharmacist cannot escape this responsibility. He is licensed by the various commonwealths specifically to protect the public interests in this as in other regards, and the responsibility unquestionably rests upon him. It is sad but true to say that the pharmacist is not keeping his compact with the public. He habitually shirks his duty in this regard while hiding behind the weak defense that he purchases his drugs from manufacturers under the manufacturers' guarantee that the drugs comply with the laws. The manufacture, however, is only responsible to the pharmacist. The public knows nothing and cares nothing about the manufacturer: its dealings are exclusively with the pharmacist. The manufacturer himself has simply exploited the pharmacist in his weakness, and the pharmacist in yielding to the weak claim that he has the manufacturer's guarantee, is not only being false to the public, but also selling his birthright for a mess of pottage. Should the pharmacist continually subject the manufacturers' guarantees to analytic inspection and control, he would be astonished to find how often U. S. P. standards are violated. Such inspection would soon result in the elimination of the snug fraud which under present conditions is alas too frequent.

If we analyze the ills under which pharmacists suffer, the really potent ones may be tabulated as follows: Too many drug stores; abuses by manufacturers; dispensing by physicians; unethical competition of unworthy pharmacists; lack of due respect accorded by the medical profession and by the public to the average pharmacist; tendency on the part of students of pharmacy to regard pharmaceutical licensure rather than professional excellence as their goal; and predominance of the mercantile activities of pharmacists over their professional activities—all combining to make the pharmacist's position less profitable, less dignified and less happy than it should be.

It is submitted that should the state boards of pharmaceutical examiners demand standards such as above proposed, such action would automatically and progressively remedy the stated ills. Thus there would be an immediate reduction in the number of new drug stores established, owing to the fact that fewer licenses would be issued.

Abuses by manufacturers would be inhibited because the entry into the profession of pharmacy of men so well educated as proposed would be certain to bring to bear upon the manufacturers such a fierce light of intelligent criticism that sordid manufacturers would be compelled to reform themselves and to occupy their proper spheres as economically necessary servants of the retailers rather than to continue as their covert misleaders or masters.

With regard to subservience to manufacturers, it may be said that while manufacturers are undoubtedly necessary in the drug trade, they are not necessary to the present extent. Retailers have become so accustomed to purchasing preparations from the manufacturers, that their tendency has become to regard practically all preparations as economically necessarily purchased from the manufacturers. The truth of the matter is intermediate. Such preparations as can from the very nature of things be more economically purchased from the manufacturers, should be so purchased. But there are many preparations now purchased from the manufacturers which could be prepared to better commercial advantage in the laboratory of the apothecary—provided he arose to his opportunity and constantly maintained an active laboratory organization. The complete collegiate training in pharmacy which is advocated in this paper would be largely along the lines of chemist laboratory training. The graduates of such courses would necessarily be in a better position to begin active competition against manufacturers than students trained according to the present standards. Under advanced standards, no doubt each drug store would have its own laboratory, fully equipped to perform all of the analytic and manufacturing functions which would normally pertain to the drug store laboratory. Furthermore, intelligent criticism would no doubt result in the establishment of coöperative laboratories conducted by and devoted exclusively to the interests of the retailers; and in which all goods offered by manufacturers and wholesalers would be subjected to chemical analysis and control, so that only such goods would be recommended to the individuals thus working coöperatively, as would properly meet their established standards. The result would be that mercenary manufacturers would soon be subjected to such a black-list program as would make it impossible for them to remain in business.

Dispensing by physicians can only be eliminated through the concerted moral influence exerted by an enlightened pharmaceutic profession upon manufacturers, public and physicians. This influence would be exerted by demands upon the manufacturers; by a propaganda of education of the public; and by the observance of a correct code of ethics between two mutually esteemed professions—obedient to which code of ethics the pharmacist would refrain from counter prescribing as rigidly as the physician from office dispensing.

Unethical competition is always fostered by low professional standards. It never thrives when the professional standards are high and when the light of an intelligent public and professional sentiment is directed upon it.

Since the present lack of suitable respect for pharmacists is due simply to the low professional standards, as soon as the public shall learn of the elevation of the standards to a high level, on a parity with the professions of law and medicine, it will not be slow to give its recognition to the same. Indeed, so quick is

the public to recognize real merit, that an examination into the advances that have been made by pharmacists will show how hearty has been the reciprocation of the public in the past efforts of pharmacists for advancement. It need only be cited that the public has cheerfully agreed to the principle of licensure by state examining boards; and it has cheerfully given its moral support to all of the efforts that have been made by the pharmacist for the suppression of illegal traffic in drugs and for the adoption of legal standards to which the drugs must comply. These standards, be it noted, are the standards set by the pharmaceutical profession for itself in the United States Pharmacopœia and the National Formulary, both of which were recognized by the Federal Government in connection with the present Federal Pure Food and Drugs Act. Indeed, the public has in this way given to the United States Pharmacopœia and to the National Formulary a legal position which they can scarcely be deemed properly to occupy, for the reason that the effect of this legal recognition is to delegate the legislative powers of the people to the unofficial committees who set the standards established by the Pharmacopœia and Formulary. With simply casual exceptions, even the profession is forced to remain in the dark with regard to the standards of the United States Pharmacopœia. The Revision Committee in publishing the Pharmacopœia merely specifies the standards and publishes no volume in which it informs the profession and the public as to the reasons for the adopted standards. There is a crying need for a supplement to the Pharmacopœia in which with respect to each standard set in the Pharmacopœia the reason for that standard should be clearly stated. Unless this is done, the conclusions reached by the Revision Committee are in the nature of star chamber proceedings, the results of which proceedings must be blindly accepted by the general profession and public. Under such circumstances the profession must be justified in feeling that an insult is offered to its intelligence, in that it must perforce accept, arbitrarily, scientific conclusions in the absence of the scientific premises upon which they are based. Further, there remains the danger that individuals of the Revision Committee might consciously or unconsciously be subject to the machinations of designing manufacturers such that standards might be set high or low according to certain selfish interests. Such danger would be at once eliminated if the reasons for the standards were officially set forth for the information and free criticism of the whole profession.

There is no doubt that all colleges of pharmacy are today suffering from the fact that the student fixes his attention upon the securing of his license to practice pharmacy; that he pursues instruction in various scientific branches—notably in analytic chemistry, pharmacognosy, and chemic and pharmaceutical technology—because he realizes that he must possess a certain amount of information in these scientific subjects in order to be able to pass the state board examinations. As soon as the candidate becomes a licentiate he too commonly devotes himself to the merely mercantile aspect of his profession, and relies upon the manufacturer to furnish the really scientific knowledge which he himself should have acquired and professionally applied. The trouble is that the preliminary educational requirement and the college training received by being adjusted to the inadequate established state board standards fail to carry the student to that excellence in scientific knowledge which would cause him to feel entirely competent himself to

handle the immense scientific problems of the drug trade of today. If, instead of stopping short of this standard of excellence, the preliminary education and pharmaceutical collegiate training were extended sufficiently, the graduate would no longer consider himself a mere tyro in the scientific aspects of the profession, but would feel fully competent to stand upon his own qualifications.

The unfortunate predominance of the mercantile side of the retail drug trade over the professional side, is due again to this same difficulty of insufficient training. The business of the drug store laboratory, if it fully perform its mission, requires such an extraordinarily complete scientific training that, with the usual training of the present day, those who must confront these problems are appalled by their immensity, weakly submit to the domination of the manufacturer, and if they ever were competent to make a beginning along independent lines and to progress from that beginning to its full fruition, their initial possibilities wither and die from inanition. There is no remedy for this condition except to prohibit the entrance into the profession of all except those who are so reasonably well qualified that they are in the best sense competent to begin and continue the attack upon their great problems.

In conclusion, it may be said that there are numerous opportunities (now neglected) for the employment of the talents of thoroughly scientific pharmacists. One of the most attractive of these avenues has already been suggested to the profession in the field of clinic analysis. It has been proposed to have a joint examining committee designated by the American Medical Association and the American Pharmaceutical Association. The duty of this committee would be to examine and issue certificates to those who have passed special examinations and have so become entitled to call themselves *certified clinic analysts*. Men who had run the gauntlet of these examinations would at once receive the confidence of the medical profession, which would soon learn to submit to them, for chemic and microscopic examination, urine, sputum, etc., analyses of which are so essential to the practice of medicine; which analyses the physicians are too busy or too unpracticed to perform; and which analyses should properly be made in the drug store laboratories. The respect and good feeling between the professions of medicine and pharmacy which would be engendered by this favorable relationship, cannot be overestimated.

A great change is at present imminent in the materia medica. Owing to the facility with which those schooled in synthetic organic chemistry are able to turn out new synthetic drugs, the drug market has been flooded with a whole host of so-called remedies, many of which, after a brief vogue (secured perhaps through clinic reports influenced by purchase) disappear wholly or completely from view. The pharmacist is thus compelled to carry an immense line of unprofitable goods, while the public health is exploited and jeopardized in wholesale therapeutic experimentation. Many of these synthetics are also the subject of unjust product-patents issued to citizens of foreign countries which do not grant equal patent rights to American citizens. The intelligent criticism of a great body of scientifically trained pharmacists would undoubtedly aid in narrowing the materia medica to rational lines, and would be potent in influencing Congress so to amend the patent laws that aliens would be denied greater patent rights in the United

States than would be granted to the citizens of the United States in the aliens' native lands.

In view of all of the foregoing, it is recommended that the American Pharmaceutical Association adopt the following resolutions:

Resolved, That the Committee on Education and Legislation is instructed to conduct a campaign having as its purpose the adoption of a uniform standard for pharmaceutic licensure throughout the United States: and that this standard shall, as a minimum, be a preliminary education equivalent to graduation from a standard high school, a pharmaceutic collegiate education of three years of eight months each, and correspondingly searching state board examinations.

Resolved, That the Committee on Education and Legislation of the American Pharmaceutical Association is instructed to conduct a campaign having as its end the establishment of a joint committee of the American Pharmaceutical Association and the American Medical Association, to examine applicants who desire to have the right to publish themselves and do business as certified analysts.

Resolved, That the Committee on Education and Legislation of the American Pharmaceutical Association is instructed to conduct a campaign having as its end the establishment of patent reciprocity between the United States and foreign countries, so that citizens of foreign countries shall be denied by the United States greater patent rights than the citizens of the United States would be granted by the respective foreign countries.

Resolved, That the American Pharmaceutical Association recommends to the Committee on Revision of the United States Pharmacopœia, that they shall issue a supplement to the Pharmacopœia, in which supplement there shall be set forth intelligibly the reason for each requirement of the Pharmacopœia, especially for the standards of purity and strength of the substances of the Pharmacopœia.

Resolved, That it is the sense of the American Pharmaceutical Association that in the traffic in drugs between the public and the retail druggists, the retail druggists are responsible to the public for the adherence of their vended Pharmacopœia and Formulary preparations to the established standards, and that the American Pharmaceutical Association recommends that pharmacists should individually or co-operatively subject all articles so vended to analytic inspection and control.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

THE PHARMACOPŒIA, THE PHARMACIST AND THE PHYSICIAN.

E. GOODMAN, PH. G., M. D.

The experience of a lifetime in the field of pharmacy and medicine, convinces me that in the last decades, we have pursued a mistaken policy. The aim of pharmacists has been to haul the public in the same wagon with the physician, whereas each should have been carried in a separate vehicle.

The present relation of physicians and pharmacists is an anachronism. The inception of the Pharmacopœia was due to the needs of physicians, who at that time had little or no knowledge of chemistry, materia medica, pharmacognosy and therapeutics, but depended implicitly on the special training and learning of the pharmacists for the means of medication.

The outcome of this status was that the physicians and pharmacists got together, the physicians naming the remedies of their choice and the pharmacists elaborating ways and means to produce the most potent and palatable preparations from the crude drugs. The selected list of remedies was then assembled into a work and

the sanction of the government obtained to make this work the established authority for all pharmacists, so that all the preparations in use by physicians might have an established standard of strength and quality. Therefore, the original design of the Pharmacopœia was—a *standard* for pharmacy and a *guide-book* for physicians.

This little work proved a stimulus for ambitious workers, who collected data relating to all crude drugs, compiled histories, commenced research work, established tests for identity, purity and strength, wrote up the therapeutic actions of medicines and their poisonous properties, and elaborated working formulæ for making the best and most dependable preparations.

The result was the U. S. Dispensatory, a partnership collaboration between physician and pharmacist. Wood and Bache, Stille and Maisch were the pioneers in this line of work.

But—this co-operative work gave to each the knowledge of the other and each began to use it for personal profit and usurped the prerogatives, one of the other. In time, we find the physician the principal research worker, and that a rival to the physician, sprang up in the person of the pharmaceutical manufacturer, who cut his rival, the pharmacist, out in the affections of the physician. So, in these times, it is the manufacturing chemist and pharmaceutical and biologic manufacturer, who furnishes the pharmacopœia for physicians, and not the pharmacists.

But another factor has also entered the field of therapeutics—the public. It, in turn, has absorbed the knowledge of the family physician, or been “put wise” by printed “family doctors” and the advertisements of proprietary medicine concerns. The pharmacist is therefore now compelled to take his orders from three sources, viz: the progressive physician, the conservative physician and the public—and does a little on his own hook besides.

Progressive physicians are always on the lookout for something new and better and are continually changing their materia medica. They discard the older remedies and preparations for the latest. Tr. Iron, as a remedy for diphtheria, has in turn been displaced by papoid, by mercury bichloride, by Loeffler's Solution, by Tr. Iodine, and lastly by diphtheria antitoxin. Tr. Iron, as a chalybeate, has been displaced in turn, by the scale salts of iron, the peptonates and nucleates; the base, by manganese, copper and vanadium. Iron, as a haemostatic, has been displaced, in turn by calcium chloride, adrenalin hydrochloride and stypticin. Silver nitrate has been displaced by the nucleates and colloidal silver. Potassium, by sodium, strontium and oleaginous bases.

The conservative doctor is loath to let go of time tried remedies, which have stood him in good stead and still clings to his calomel, opium and bismuth, his galenicals and elixirs, his pills and powders, liniments and lotions, plasters and ointments.

The public exercises, in a ten fold greater degree, its prerogative of self-medication. It uses indiscriminately all the remedies it ever heard of, ranging from “old granny” household remedies to the latest synthetics, from homeopathics to narcotics and from patents to poisons. Antikamnia, aspirin, aloin, strychnine, belladonna pills, cascara aromatic, purgens tablets, galangal root, zedoary, catnip, ergot and hundreds of others, are ordered with a nonchalance and authority which are astounding. Now still a fourth factor has taken a hand in the vending of medicines and drugs and that is—the legislature. It orders what may and what may

not be sold; by whom and to whom it may not be sold; for what purposes it may and for what purposes it may not be sold; in what strengths it may and may not be sold; how it must be labeled, how it must be registered and how it must stand the tests for purity and strength.

And the distraught druggist must stand as a buffer for all these various onslaughts. Can you blame him, then, if he demands a safeguard against each? He, no longer, must serve the old time doctor alone, but the new doctor, the insistent public and the fastidious legislature. Therefore, he desires an authoritative work, which shall include all the demands made upon him. If our government decrees to be a paternal government, it must be paternal not only to one class, but to all classes. The druggist must, therefore, have just as authoritative a formula for Godfrey's cordial, Dewee's carminative and Jackson's pectoral syrup, as for paregoric, laudanum or elixir heroin. He is just as much in need of complete information regarding galenicals, as he is of antitoxins, bacterins and vaccines.

On the other hand, physicians no longer care for pharmacopœial remedies, or the Pharmacopœia. They look to the laboratories, the manufacturers and the clinicians for their remedies. They no longer rely upon a fixed dose and certain result, but are guided by clinical and bedside experience. They have little use for the old time drug stores; they keep their armamentarium in their office or hospital; they dispense, as well as prescribe; they rely more on mechanical, hygienic and prophylactic treatment, than on medication.

Physicians and pharmacists having thus grown apart, each must look to his own wants. The pharmacist is a purveyor and must therefore be in a position to supply all his patrons; he is answerable to all classes of physicians, to the public and to the law and must therefore have the protecting influence of each—authority. Whereas the Pharmacopœia sufficed when he served only one master, now that he must serve three, nothing short of an abridged dispensatory will satisfy him.

On the other hand, the physician is the apostle of progress; he is ever striving to break away from old methods and remedies; he changes his materia medica to suit himself; he needs his own authority and the conservatives must follow in his wake, if they would maintain their professional standing and success. He wants nothing in common with the lay doctors, or quacks; he wants his own standard of quality. Therefore, a Pharmacopœia along old-time lines is no longer sufficient, for druggists and physicians no longer want to be bound to certain remedies for ten years. Practically, the result has already been accomplished and only lacks elaboration and the stamp of authority. A comprehensive formulary is a necessity and besides the formulæ, it should contain all the crude drugs in common use, with their official, botanical and common names; modes of identification, sophistications, methods of preservation and indications of deterioration. It should contain all the chemicals, oils and other preparations in common use with tests for identity, purity and strength, properties and uses. In fine, the future pharmacopœias should be abridged dispensaries, only the commercial history, botanical descriptions and therapeutic actions being eliminated.

The physicians have adopted as their standard the publications of the Council on Pharmacy and Chemistry of the A. M. A. So we find the divorce actually accomplished and only awaits the official sanction.

NOTES ON CHEMICAL TESTS OF THE UNITED STATES
PHARMACOPŒIA.*

CARL E. SMITH.

(Continued from page 212.)

SPECIAL METHODS.

ACETANILIDUM.—The melting points of good products may range between 112° and 115°. Chemical authorities give figures varying from 112° to 116° for the pure substance. A boiling point determination is not required as a test of purity. The U. S. P. requirements regarding inorganic impurities are somewhat vague; foreign pharmacopœias allow limits of 0.05 to 0.1 per cent; products containing not more than 0.05 per cent. of non-volatile matter are readily obtainable.

ACETONUM.—The tests and physical constants given cannot be entirely relied upon to determine if a given sample contain the required percentage of absolute acetone, because of the probable presence of small amounts of methyl alcohol. Messinger's method is generally regarded to be the most reliable for an assay, although it includes any "acetone oils" that may be present also, but these, when present in considerable quantity, are detected by a raised boiling point. The details may be conveniently carried out as follows: About 2 gm. of acetone are weighed in a stoppered weighing-bottle containing about 10 cc. of water, then diluted with water to 1 liter. Of this solution, 20 cc. are mixed with 25 cc. of n/10 sodium hydroxide in a 250 cc. glass-stoppered flask, 50 cc. of n/10 iodine added, and the mixture allowed to stand 15 minutes. It is then acidulated with about 25 cc. of n/10 hydrochloric acid and the liberated excess of iodine titrated with n/10 sodium thiosulphate. Each cc. of n/10 iodine ($O=16$) consumed in the formation of iodoform corresponds to 0.0009675 gm. of acetone. A blank test should be made with the reagents and any iodine consumed deducted from that consumed in the determination. The U. S. P. boiling point applies to normal barometric pressure only. Since glass loses weight during contact with steam and hot water, platinum and well-glazed porcelain dishes are preferable for determining the non-volatile matter.

ACETPHENETIDINUM.—A melting point interval of 134° to 135° is slightly narrow, as satisfactory products often begin to melt at about 133°. Non-volatile matter should not exceed 0.05 per cent. In the bromine test for acetanilide, the bromine water should be added drop by drop, with agitation after each addition, until the solution is permanently yellow. In case a considerable amount of bromine water is added all at once, a turbidity or precipitate is liable to form with pure acetphenetidin. The second test for acetanilide is superfluous; it has been found faulty and misleading by various analysts. The test for parphenetidin may fail to show presence of traces of this unless a control test is made with a sample of known purity and the resulting colors compared. The delicacy of the test may be increased by boiling 1 gm. of acetphenetidin, 3 cc. of

*Analytical Laboratory of Powers-Weightman-Rosengarten Company.

alcohol, and 10 cc. of water with one drop of $n/10$ iodine, when the rose tint produced by minute traces of parphenetidin will be brought out more distinctly. Pure acetphenetidin has a slightly bitter taste; the U. S. P. and other authorities state that it is tasteless.

ACIDUM ACETICUM.—If non-volatile matter is determined after supersaturation with ammonia water, as officially directed, allowance should be made for non-volatile impurities in the latter, as they are always present to some extent in ammonia that has been kept in glass containers. It seems preferable to evaporate the acid without previous neutralization. The accuracy of the permanganate test can be increased by measuring the reagent from a 1 cc. pipette instead of dropping it, assuming a drop to be equal to 0.05 cc., also by at least doubling all the quantities. Arsenic is considered by various authorities a probable impurity; it may be detected by the official Gutzeit test.

ACIDUM ACETICUM DILUTUM.—Diluted acids are required (see "*Introductory Notices*" of the U. S. P., p. LVII) to be brought to the strength of the stronger acid before application of the tests given for the stronger acid, or a proportionately larger quantity of the weaker is to be taken for each test. The acid is too weak for direct application of the test for formic and sulphurous acids and concentration before testing is likely to eliminate these volatile impurities, therefore it seems best to supersaturate it with a fixed alkali, then evaporate to the required volume, before making the test.

ACIDUM ACETICUM GLACIALE.—A boiling point determination is not necessary to establish purity and strength. A congealing point determination gives the strength of acids above 95 per cent. at least as accurately as a titration, in shorter time and with less labor. According to Ruedorf, acetic acid containing 0.98 per cent. of water congeals at 14.8° ; that containing 0.497 per cent., at 15.65° ; the absolute acid at 16.7° . The titration is more conveniently made with 2 to 2.5 cc. of the acid, as 3 cc. require more than 50 cc. of normal alkali.

ACIDUM BENZOICUM.—While the U. S. P. includes both the synthetic and the natural acid in its descriptions and tests, these do not distinguish one from the other, except in the statement that the acid sublimed from benzoin is more soluble in water and has a lower melting point than that made by *toluol*. But, as will be shown later, this is not a satisfactory means of differentiation, while those who purchase natural acid at a cost three times that of the synthetic, are entitled to what they pay for. In chemical literature no method is to be found that will afford a sure means of detecting adulteration or substitution, but if it can safely be assumed, what is generally conceded to be true, that natural benzoic acid never contains chlorine in organic combination, this fact can be utilized, since no artificial acid free from chlorobenzoic acid has, up to the present time, been placed on the market at a cost low enough to make substitution and adulteration worth while. If, then, no chlorine is found in a sample when tested by the official method, with chlorine-free calcium carbonate, it may be considered that its source was benzoin, solely, natural acid made from hippuric acid no longer being an article of commerce. Unfortunately the natural acid of the market nearly always contains traces of hydrochloric acid or metallic chlorides, and this fact has heretofore been considered to bar this means of differentiation. Simple as it seems,

the writer has not been able to find, in the literature treating of this subject, the suggestion to test for *organic* chlorine in presence of the *inorganic* chlorine. This may be done by quantitative determinations of total chlorine and of inorganic chlorine in separate portions of a sample. About 5 gm. or more, after conversion into the calcium salt with an excess of pure calcium carbonate and a little water, should be charred in a platinum dish at a low red heat, the residue extracted with boiling water, dried, and incinerated at a low temperature. The ash should also be extracted with boiling water. The total chlorine may then be determined in the combined filtered solutions, preferably by Volhard's method. Another portion of the sample may be dissolved in weak ammonia water (free from chloride), nitric acid added until no further precipitation takes place, and inorganic chlorine determined in the filtrate by the same method. The second result subtracted from the first, gives the organic chlorine, of which synthetic benzoic acid usually contains 0.05 per cent. or more. If the two results are the same, organic chlorine is absent, and the sample may be considered free from adulteration with synthetic acid. For accurate determinations Volhard's method requires that the silver chloride be removed by filtration before titrating the excess of silver and where such small quantities of chlorine are involved, it is important that the n/10 silver nitrate should not be more than 0.2 cc. in excess, according to A. T. Stuart (Jour. Am. Chem. Soc., 1911, v. 33, p. 1344). Benzoic acid from benzoin, as now found on the market, contains less of its characteristic impurities than formerly and sometimes scarcely differs in solubility and melting point from the artificial acid. The principal difference between the best grades of the two kinds, in addition to those already mentioned, are as follows: The synthetic acid is white, in thin, lustrous scales, and has an odor of benzaldehyde; the natural acid is yellowish-white, in small, friable acicular crystals, and has an odor of benzoin, quite different from that of benzaldehyde. A solution of about 0.5 gm. of the first in 10 cc. of sulphuric acid should not be darker than yellow at 50°; the second may produce a light brown solution under similar conditions. Both kinds should not contain more than 0.05 per cent. of non-volatile matter.

ACIDUM BORICUM.—In the identity test with turmeric paper, ammonia changes the color to greenish-black, not bluish-black, as stated. The test for arsenic, as now given, permits presence of at least 20 parts per million, which seems rather too much, when it is considered that many other substances, given in smaller doses, are limited to 10 parts per million. Glycerin used for the titration should be neutralized, as otherwise the result will be a little too high. All available glycerin has an acid reaction. The quantity of boric acid directed for the titration is hardly sufficient for accurate work; about 2.5 gm. would be preferable, but care should be taken that the liquid contains at least 30 per cent. of glycerin at the end of the titration, which, according to R. T. Thompson, is necessary for correct results. It may be said, however, that a titration is not necessary to determine the purity of boric acid. If it stands the other U. S. P. tests, it cannot well contain more than 0.2 per cent. of impurities.

ACIDUM CAMPHORICUM.—It should not yield more than 0.05 per cent. of residue on incineration. The melting point has been found to vary from 183° to 187°. The Brit. Pharm. Codex considers 180° the lowest that may be permitted.

ACIDUM CITRICUM.—The U. S. P. gives no tests for tartaric and oxalic acids, unless the lime water identity test be so considered. A test for tartaric acid used by a number of foreign pharmacopœias and which has been found satisfactory, is made by mixing about 0.5 gm. of the acid with 5 cc. of sulphuric acid in a porcelain dish and heating for 15 minutes on a water-bath, protecting the contents of the dish from dust meanwhile. No color darker than yellow should develop. In presence of tartaric acid the liquid becomes brown to black. Oxalic acid is best detected by the test given in the U. S. P. for oxalic in tartaric acid. Arsenic is recognized as a probable impurity by several foreign pharmacopœias. Excessive amounts can be detected by the official Gutzeit test.

ACIDUM GALLICUM.—It is not soluble in 40 parts of ether, as stated in the U. S. P. and various other authorities. A. Seidell found it soluble in 72 parts of absolute ether at 25°. A limit of 0.1 per cent. of ash must be permitted. A melting point determination is useless as a test of purity, owing to decomposition near the melting temperature.

ACIDUM HYDRIODICUM DILUTUM.—The specific gravity in the U. S. P. applies only to products made by the official method, containing a large amount of potassium bitartrate. A purer acid of the same strength has a considerably lower specific gravity. For the titration with silver nitrate, the acid should be diluted with at least twice as much water as is directed, to prevent reduction of silver by the hypophosphite present. A glass-stoppered flask should be used. No test is provided for hydrochloric and hydrobromic acids, which may be fraudulently added. For their detection a test may be based on the same principle as is used in the U. S. P. test for hydrochloric in hydrobromic acid, substituting ammonia water for ammonium carbonate. The presence of traces of hydrochloric acid, however, cannot always be avoided in a carefully made product.

ACIDUM HYDROBROMICUM DILUTUM.—The requirement that no "appreciable" residue should remain after evaporation of 10 cc., is subject to differences of interpretation; a well made product should not leave more than 0.01 per cent. A treatment with sulphurous and sulphuric acids, as a preparation for the test for arsenic is neither necessary nor desirable, as the arsenic is likely to be volatilized in the process. Volhard's method is more convenient than Mohr's for an assay and just as accurate.

ACIDUM HYDROCHLORICUM.—It should not contain more than 0.01 per cent. of non-volatile matter. The preliminary treatment for the arsenic test should be omitted, as the arsenic would be volatilized as arsenous chloride. The U. S. P. test for free chlorine is not conclusive, as ferric chloride, present in permissible quantity, may liberate iodine under the conditions of the test.

ACIDUM HYDROCYANICUM.—It is not "completely" volatilized by heat, but should not leave more than 0.01 per cent. of residue.

Acidum Hypophosphorosum.—Products containing much oxalic acid and calcium oxalate have been found in this market during recent years by E. L. Patch, E. H. Gane, and others. The U. S. P. has no test for this dangerous contamination, the entire absence of which should be demanded. The detection of oxalates may be slightly complicated by the presence of phosphoric, phosphorous, sulphuric, or tartaric acid; a precipitate obtained by the addition of calcium chloride

and an excess of ammonia may consist of the calcium salts of any of these, but if this be found readily soluble in acetic acid, absence of oxalic acid may be assumed; any portion of it not readily soluble should be further examined according to the rules given in any text book on Qualitative Analysis. The official test for a limit of barium, another unnecessary and dangerous impurity, is inadequate, since phosphoric acid, which is always necessarily present to some extent, precipitates barium phosphate, when an excess of ammonia is added. This is then filtered out, before the test for barium is made in the filtrate. As a substitute test the writer recommends that any precipitate, formed when the acid is nearly neutralized with ammonia water, potassium sulphate added, and the mixture allowed to stand several hours, should be required to be completely soluble in diluted hydrochloric acid, to show *absence* of barium.

Acidum Lacticum.—As has been pointed out in the journals by several authors, the concentrated acid of the market is a mixture of lactic acid and several lactic anhydrides. An acid having the specific gravity given by the U. S. P. contains from 72 to 75 per cent. of lactic acid and about 15 per cent. of anhydrides, which are convertible into lactic acid by contact with alkali or, more slowly and incompletely, by dilution with water. It is officially described as being colorless, but market products always have a slight yellowish tint. The ash limit is placed at 1 per cent., but products of good quality now do not yield more than 0.1 per cent. The official test for glycerin is unsatisfactory, because zinc lactate is taken up by alcohol together with any glycerin present and the taste of small quantities of the latter is masked thereby. The following test is used by various pharmacopœias and has been found more satisfactory: The concentrated acid is added drop by drop to ether of U. S. P. strength and the mixture shaken after addition of each drop. Neither a transient nor a permanent turbidity should result. When the acid contains about 2 per cent. of glycerin, a turbidity is produced after the addition of a few drops to 5 cc. of ether. When the addition of acid is continued, the turbidity finally disappears. Smaller quantities of glycerin can be detected when absolute ether is used. The U. S. P. gives no test for detection of additions such as tartaric, citric, oxalic, and phosphoric acids. A test given by most foreign pharmacopœias consists in heating the acid with an excess of lime water. No turbidity should be produced. Cold titration with alkali and phenolphthalein gives the actual lactic acid together with a small amount of anhydride, which is hydrated during the titration. Subsequent heating with an excess of alkali gives the remainder of anhydride. The assay may be carried out conveniently as follows: About 5 gm. of the sample are weighed in a stoppered weighing bottle, diluted with 50 cc. of water, and titrated with $n/1$ alkali until the entire solution becomes *momentarily* pink after mixing. The result is calculated as lactic acid. The solution is then heated for half an hour with 25 cc. more of $n/1$ alkali on a water-bath, cooled, and the excess of alkali determined with $n/1$ acid. The alkali consumed in the second titration represents the anhydrides, which are calculated in terms of lactic acid, for convenience. (See also E. Elvove, *Am. Jour. Phar.*, 1911, v. 83, p. 14.)

Acidum Nitricum.—It should not contain more than 0.01 per cent. of non-volatile matter. A test for arsenic is unnecessary, as this is very improbable as an impurity; no other recognized authority gives a test for it. The official test, if

considered necessary, should be modified by evaporating the acid to dryness on a water-bath before the treatment with sulphuric and sulphurous acids. The official test for sulphuric acid does not prove "absence," but merely defines a limit.

Acidum Oleicum.—The specific gravity of products of U. S. P. standard may vary from 0.890 to 0.896 at 25°. It should not leave more than 0.1 per cent. of residue on incineration. The alcohol test for fixed oils has been shown by J. F. Woolsey and C. H. Ballinger to be incapable of detecting an admixture of 50 per cent. The official test for "undecomposed fat" in stearic acid can be recommended as a satisfactory substitute. It also shows presence of hydrocarbon oils. The lead test for limits of stearic and palmitic acids is too stringent for a product made by the official directions and is also defective in other respects. Since the limits of these acids are fixed by the congealing point, this test is superfluous. A test for free mineral acids, which may be present when the older methods of manufacture are used, might well be added. If the acid be shaken with an equal volume of water, the separated water should not be acid to methyl orange. Determinations of acid, saponification, and iodine values have been recommended, but seem unnecessary.

Acidum Phosphoricum.—While the U. S. P. allows 10 parts of arsenic per million, products containing less than half this amount are now readily obtained. The U. S. P. table of specific gravities and percentages has been found somewhat inaccurate and should not be relied upon for precise adjustments of strength. The official method of titration, as modified in 1907, has been found by J. Rosin to give results agreeing within 0.2 per cent. with the results obtained by gravimetric determination as magnesium pyrophosphate. It is necessary to adhere closely to the prescribed details regarding the ratio of sodium chloride and water to phosphoric acid for accurate results.

Acidum Salicylicum.—The natural acid of the market usually has a slight yellowish or pinkish tint and a slight odor, but the synthetic acid should be white and odorless. A melting interval of 156° to 157° is too narrow for the available product. G. A. Menge found the corrected melting intervals of 5 market samples to range from 157.5° to 158.9°. Natural acid, as found in commerce, is likely to give somewhat lower figures. An allowance of 0.6 per cent. of inorganic impurities is unnecessarily liberal; not more than 0.1 per cent. should be present. In the test for coloring matter a slight yellowish or pinkish tint must be allowed in the case of natural acid. All obtainable synthetic acid gives a yellow solution in sulphuric acid, when tested as officially directed; natural acid may produce a light brownish solution.

Acidum Stearicum.—The U. S. P. test for "undecomposed fat" also serves as a test for paraffin, which obviates the need of determining the acid or iodine value for detecting such admixture. Absence of free mineral acid may be established by shaking the melted acid with an equal volume of water, cooling, and testing the separated water with methyl orange.

Acidum Sulphuricum.—It should not contain more than 0.01 per cent. of non-volatile matter. When the acid is neutralized with ammonia water before volatilizing, as officially directed, the non-volatile matter derived from this should be deducted. It is preferable to evaporate without previous neutralization when a

hood having good draught is at hand. The quantity directed for titration is entirely too much; not much more than 1 cc. of concentrated acid should be taken.

Acidum Sulphuricum Aromaticum.—The time required for hydrolysis of the ethylsulphuric acid can be greatly shortened by heating with an excess of N/1 alkali.

Acidum Sulphurosum.—It is advisable to weigh the acid in a glass-stoppered flask large enough for the titration and containing enough water to prevent loss of sulphur dioxide by volatilization.

Acidum Tartaricum.—Arsenic is considered to be a possible contamination by some authorities. The U. S. P. Gutzeit test may be used for detecting excessive quantities.

Acidum Trichloraceticum.—The melting point may be expected to vary from the official figures (52°); the German Pharmacopœia gives 55° , the Swiss 56° . As this acid is extremely hygroscopic, a melting point determination with any degree of accuracy is impracticable. It should not leave more than 0.05 per cent. of residue on volatilization. The ferric chloride identity test should be omitted, as the pure acid gives no color. In addition to the U. S. P. tests, the ferrous sulphate test, made in the usual way, should not give a reaction for nitric acid and silver nitrate should show not more than slight traces of hydrochloric acid.

(To be continued.)

LISTER AND LISTERISM.

A man who leaves his name in his native language as the description of an art which has saved millions of lives in his lifetime is rare in human history, and such a man was Joseph Lister, the discoverer of the antiseptic system of treatment in surgery. He was the son of Joseph Jackson Lister, F. R. S., a distinguished microscopist and a member of the Society of Friends. His birthplace was Upton in Essex, and after his elementary education at Friends' schools he completed his classical and mathematical studies at University College, London, graduating as B. A. Lond. in 1847. He continued at the college as a medical student, and became M. B. Lond. and F. R. C. S. Eng. in 1852. After a short period at University College Hospital as a resident surgeon he visited Edinburgh, taking with him a letter from Professor Sharpey, then of world-wide reputation, to Professor Syme, who held the Surgery chair in the Edinburgh University, and the visit became a sojourn in Scotland of about a quarter of a century, during which he had discovered and perfected the antiseptic system of surgical treatment, filled the chairs of Surgery in Glasgow University (1860-69) and in Edinburgh University (1869-77), and became known throughout the civilized world as a distinguished surgeon and one of the greatest benefactors to humanity. In 1856 he married Agnes, the daughter of Professor Syme, and became an extra-mural lecturer in surgery of the Edinburgh Medical School, which he retained until his appointment to the Glasgow chair. He was a chemist and histologist of no mean ability, and was quick to appreciate the significance of Pasteur's work on fermentation, which led to the observation that that process and putrefaction are the result of micro-organisms living upon the organic matter which ferments or putrefies. Hitherto

the processes were regarded as chemical changes, inevitable as effervescence when a carbonate and an acid are mixed. It was Lister who linked together Pasteur's researches on fermentation that had gone wrong owing to foreign germs, with the "surgical fever," which at that time was the scourge of hospitals, and he patiently experimented until he proved that by the application of germicidal protection to wounds they healed "by first intention" far more frequently than by the old and recognized methods. His discovery was announced in 1865, but several years elapsed before there was much recognition of the value of his discovery—the methods were crude and the antiseptic preparations clumsy and complicated. Lister applied himself to the improvement of methods and preparations, pharmacists in Glasgow and Edinburgh helping him. In 1869 he succeeded his father-in-law in the Edinburgh chair, and then the antiseptic treatment began to be better appreciated, while graduates from Edinburgh carried the *rationale* of the treatment to all parts of the world. As it came to be more commonly used, Lister had helpers in its improvement, not the poorest helpers being the critics. We need not elaborate the progress of Listerism; today it means the performance of surgical operations under germless or aseptic conditions, and it means for the human race successful surgical treatment of diseases which were invariably fatal forty years ago, because of the putrefaction which followed the surgeon's knife. Lister was called to King's College, London, in 1877, and remained there until 1893 as Professor of Clinical Surgery, meanwhile having a lucrative practice as a consultant. He had many academic and scientific honors, became a Baronet in 1883, and a Baron of the United Kingdom in 1897, the latter honor being for the first time conferred on a medical practitioner, and he was one of the first to receive the Order of Merit from King Edward VII., whom he had attended when he was operated upon for appendicitis by Sir Frederick Treves. He influenced pharmacy in so far as Listerism has called for new chemical and galenical preparations. This ancient class of preparations was changed by Lister calling for a protective basis which he found in the paraffins. The demand for antiseptic dressings has created a new pharmaceutical industry, and Lord Lister was as interested in these minor developments of his discoveries as he was in the operative side. His election in 1893 as an honorary member of the Pharmaceutical Society of Great Britain was a tribute not only to his fame as a surgeon, but his accomplishments in chemical research. He was a frequent guest of the Society during his active years, and it is well when the world pays tribute to his life's work that we pharmacists should remember that pharmacists worked with him in his discovery, and that he was the first to acknowledge their services to him.—*Chemist and Druggist* (London).

THE NEAR-SIGHTEDNESS OF THE CYNIC.

"Happiness is the voice of optimism, of faith, of simple steadfast love. No cynic or pessimist can be really happy. A cynic is a man who is morally near-sighted—and brags about it. He sees the evil in his own heart, and thinks he sees the world. He lets a mote in his eye eclipse the sun. An incurable cynic is an individual who should long for death—for life cannot bring him happiness, and death might. The keynote of Bismarck's lack of happiness was his profound distrust of human nature."—*William George Jordan*.

Papers Presented to Local Branches

THE OFFICIAL TESTS FOR CREOSOTE.

JOSEPH W. ENGLAND.*

The tests of the U. S. Pharmacopœia (VIII) for Creosote are indefinite and unsatisfactory.

The therapeutically active ingredients are chiefly the ethers guaiacol (b.p. 200° C.) and creosol (b.p. 219° C.) with the alcohols phenol (b.p. 182° C. B. P.), paracreosol (b.p. 203° C.), dimethyl-guaiacol (b.p. 230° C.) and propyl-guaiacol (b.p. 241° C.), (Food and Drugs, E. J. Parry, 1911, 454). Guaiacol and creosol are closely related, chemically, the former being methyl catecholate ($C_6H_4(OCH_3OH)$), and the latter, methyl homocatecholate ($C_6H_3CH_3(OCH_3OH)$).

Allen states (Commercial Organic Analysis, A. H. Allen (1900), Vol. II, Part II, 279) that "Phenol is present in genuine wood-tar creosote in very small quantity, the creosols in somewhat larger, and the xlenols in sensible proportions; but the two chief constituents are guaiacol and creosol. In Rhenish creosote, guaiacol predominates, but a sample of Morson's creosote from 'Stockholm tar,' examined by the author, boiled at 217° C., and consisted chiefly of creosol." He writes (p. 285), that the range of boiling point from 200 to 220° C. "admits creosol to an equality with guaiacol as a legitimate and valuable constituent of creosote, which would appear to be justifiable both from analogy and from what is positively known of the therapeutic action of creosol."

There are considerable differences of opinion regarding the percentage of guaiacol in creosote. Some years ago it was believed to be 60 per cent. or more, but if this ever was the case, there has been a marked reduction in recent years.

Thus, Behal and Choay, in 1894 (Compt. rend. 119, 116; Abst. J. S. C. 1. 1894, 1087, 1187), obtained from beechwood creosote (two samples), *respectively*, 39 and 39 per cent. of monophenols, 19.7 and 26.5 per cent. of guaiacol, and 40 and 32.1 per cent. of creosols and homologues.

In 1899, Kebler (Amer. Journ. Pharm. 1899, 409) found the proportion of guaiacol in commercial wood creosote to range from *nil* to 16 per cent.

In 1900, Allen wrote (p. 283) "in consequence of the large demand of recent years for guaiacol and its preparations, much of the wood creosote now sold has been deprived of its guaiacol, so that it is now rare to find specimens containing even 20 per cent. of that constituent," and Parry (Foods and Drugs, 1911, 455) states that "guaiacol is present to the extent of about 15 to 25 per cent."

The chief tests of the Pharmacopœia (VIII) for Creosote are the gravity (s.g. (corrected) 1.078 at 25° C.), and the boiling point ("when distilled most of it comes over between 200 and 220° C.").

*Read before the Scientific Section of the Philadelphia Branch.

While guaiacol boils at 200 to 205° C., creosol at 219° C. and the monophenols at less than 200° C. (the boiling point of phenol is 182° C. (B. P.)—188° C. (U. S. P.)), it is apparently possible (1) to distill off the low-boiling phenols and reserve, (2) to distill off all or a part of the guaiacol and (3) to add the reserved low-boiling monophenols to the high-boiling creosol and obtain a product that will comport with the U. S. P. standards.

In this way creosote can be deguaiacolized, and a product worth about \$2.40 a pound can be obtained from one worth about 75 cents a pound, and the residue can be sold for creosote at 75 cents.

The Pharmacopœia seeks to prevent such a practice by requiring that when creosote is distilled "most of it" (a most indefinite statement) comes over between 200 and 220° C., evidently assuming that if the product contains much phenol it will boil at a lower boiling point than 200° C. As a matter of fact, this is not the case. Kebler has shown (*Amer. Journ. Pharm.*, 1899, 410) that the fraction of creosote coming over between 200 and 210° C. may contain a goodly per cent. of phenol having a boiling point of 20° below the lowest boiling point, and the same fraction may contain more than one-third its weight of creosol, a body having the boiling point of 219° C.

Experiments made by H. M. Sechler in the Analytical Laboratory of the Smith, Kline & French Company, show that when phenol is added to creosote or guaiacol, the mixture does not boil at 188° C. (the boiling point of phenol is "not higher than 188° C."), but a number of degrees higher, depending upon the percentage added. Doubtless some of the lower-boiling liquid is vaporized by the heat, but the boiling point of the mixture is higher than that of the lower-boiling liquid added.

The results obtained were:

Creosote B. P.....	208.5° C.
Phenol B. P.....	188 ° C.
Creosote 75% } B. P.....	198.5° C.
Phenol 25% }	
Guaiacol B. P.....	204.5° C.
Guaiacol 75% } B. P.....	197.5° C.
Phenol 25% }	

Five samples of Creosote marketed by American manufacturers and guaranteed under the Food and Drugs Act, have been examined by M. Becker in the Analytical Laboratory of Smith, Kline & French Co. The percentages of distillate obtained were by volume. The specific gravity of each sample at 25° C. was 1.080.

No. 1 vaporized at 198° C. and gave 8 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 80 per cent., and between 200 and 220° C., 84 per cent.

No. 2 vaporized at 198° C. and gave 28 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 60 per cent., and between 200 and 220° C., 64 per cent.

No. 3 vaporized at 195° C. and gave 36 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 58 per cent., and between 200 and 220° C., 62 per cent.

No. 4 vaporized at 197° C. and gave 24 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 64 per cent., and between 200 and 220° C., 68 per cent.

No. 5 vaporized at 198° C. and gave 8 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 80 per cent., and between 200 and 220° C., 84 per cent.

A sample of Morson's English creosote was examined, also, and found to have the specific gravity of 1.083 at 25° C. It vaporized at 203° C. and gave 80 per cent. of distillate between 203° and 215° C., and 94 per cent. between 203° and 220° C.

Parry (Food and Drugs, 1911, 455) claims that "a good creosote should have a specific gravity of at least that required by the British Pharmacopœia, preferably a little higher—up to 1.085. 1.085 at 15.5° C. (B. P. temperature; about equals 1.079 at 25° C., U. S. P. temperature, J. W. E.) On fractionation, three typical samples gave the following results with which pure samples will approximately correspond":

	Sp. Gr.	Guaiacol Percent	Under 200° C Percent	200-205° C Percent	205-210° C Percent	210-215° C Percent	215-220° C Percent
1	1.0815	21.5	6	39	22	25	6
2	1.0820	19.8	7.5	40	20	23	7
3	1.0800	23	5	35	24	22	10

Parry's experiments show that from 81 to 86 per cent. of English creosote distils between 200 and 215° C., and 6 to 10 per cent. between 215 and 220° C.; or 90 to 92 per cent. between 200 and 220° C.

Pure guaiacol was formerly described as a liquid, but has been obtained by Behal and Choay (Comp. rend. 116 (1893) 197) as a white solid liquefying at 28.5° to 33° C.

The specific gravity of liquid guaiacol at 15° C. is from 1.143 to 1.149 (Commercial Organic Analysis, Allen, Vol. II, Part II, 273).

The specific gravity of creosol at 13° C. is 1.0894 (Watt's Dictionary of Chemistry, 1894, 271).

The specific gravity of the phenols of creosote is probably much lower than that of guaiacol or creosol.

Creosote varies greatly in its percentages of guaiacol, creosol and monophenols. In therapeutic properties, it is analogous to phenol, being antiseptic, anesthetic and antipyretic, but it is believed to be more powerful in action. Creosote depends for its activity not only upon its guaiacol and creosol, which together are present in the larger proportions, but also, upon its monophenols, which Behal and Choay (previously quoted) found to the extent of 39 per cent., these (in creosote) distilling between 200 and 220° C.

Since "Creosote is more efficient than either of its principal constituents, guaiacol or creosol, even if given in proportionate dose" (Pharmacology and Therapeutics, Reynold Webb Wilcox, 1905, 598), its activity can *not* depend upon guaiacol or creosol, or both; it must depend also upon its monophenols. While guaiacol resembles creosote in its general action, it is much more powerful in reducing temperature and much less active as a germicide (U. S. D. 19 Edt., 603).

Hence, it would appear that the guaiacol-content or the creosol-content of cre-

osote, or both, are not indicative of therapeutic strength, and that the best procedure, apparently, for the Pharmacopœia, would be to eliminate the phrase "most of it" in the paragraph "when distilled most of it comes over between 200 and 220° C." and to require that, when distilled between 200 and 220° C., *a certain specified percentage of distillate (by volume) shall be obtained*, probably between 80 and 90 per cent., as indicated by the experiments of Parry and Becker.

It might be desirable, also, to raise the official specific gravity of creosote slightly, so as to ensure the presence of more guaiacol. The higher the gravity the greater the percentage of guaiacol, since guaiacol has the highest gravity of the several principles of creosote. The U. S. P. (VIII) gravity (corrected) of 1.078 at 25° C. is about 1.085 at 15.5° C. (the B. P. standard is not below 1.079) and this is lower than the gravity of either guaiacol (1.143-1.149 at 15° C.) or creosol (1.0894 at 13° C.). As has been shown (Am. Journ. Pharm., L. F. Kebler, 1899, 411), a gravity of 1.070 at 15° C. can be easily met by a creosote that does not contain any guaiacol. Parry recommends a gravity of 1.085 at 15.5° C. or about 1.079 at 25° C., which latter is practically the same as the present (corrected) U. S. P. gravity of 1.078 at 25° C.

ADULTERATION OF DRUGS.*

ROBERT S. HILTNER, CHIEF OF U. S. FOOD AND DRUG INSPECTION LABORATORY
AT DENVER.

The Food and Drugs Act of June 30, 1906, was enacted primarily for the purpose of preventing the manufacture, sale or transportation of adulterated, or misbranded, or poisonous, or deleterious foods, drugs, medicines and liquors. I would emphasize the words *adulterated*, *poisonous* and *deleterious drugs*, as they are in line with what I have to say this evening and because they have an important bearing on the other topics on the program, viz., the "Richardson amendment."

The Food and Drugs Act includes under the term *drug* all medicines and preparations recognized in the United States Pharmacopœia and National Formulary, for internal and external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease, of either man or other animals. This little word *drug* with its four letters is fraught with a mighty meaning. By the provisions of this law it embraces within its scope not only all the products enumerated in the U. S. P. and the National Formulary, which your association publishes, but every substance described in the most comprehensive dispensatory or dictionary of medicine, every true patent medicine and every popularly so-called *patent medicine*, every nostrum; all manner of "dope" if you please. Indeed it seems that we may catalogue here almost everything mineral and vegetable, and some animal, that God has created and that man, aided and abetted at times by the devil, has devised or fabricated. The surf and weeds of

*Read before the Denver Branch.

the beach, the metals of the mountains, the chalk and clay of the plains, the weeds and flowers of the fields; bugs that crawl, insects that sting, beetles that bite; all have been offered to poor, sick, suffering humanity, and the lower orders of fauna, to alleviate their ills, and all come within the provisions of the Food and Drugs Act. Medicines for the horse, cow, the chickens, the cat and the dog, are subject to the same legal requirements as those for man. It is appalling what a vast list of substances falls within this category.

There are described in the National Dispensatory approximately 5000 substances that are used or have been tried as medicines! This does not include any of the bottled and boxed "remedies," "cures," "balm" that infest every drug store. A brave man he would be who would undertake to count this class of material. It has been estimated that there are at present on the market in the United States no less than 50,000 different kinds of drug products, proprietary and other kinds. Think of it! Fifty thousand varieties! Fifty-seven varieties of pickles hardly make a ripple in comparison. Out of this vast number only about 1500 are described in the United States Pharmacopœia and National Formulary.

The little word "food," with the same number of letters as in drug, is not nearly so expansible. There are comparatively few kinds of natural substances that are fit to eat, and the number of edible products manufactured from them are fewer still. This is fortunate for us, for we all know that the closer we keep to Nature's foods the better we are nourished and, incidentally, the cheaper. It is reported that a group of chemists in one of our technical schools is seriously attempting to manufacture foods from petroleum. Let us pray that they may be unsuccessful! We've been abused enough by coal tar, let's not insult our stomachs by providing paraffin steaks or hydrocarbon jelly, no matter how artfully masked by the magic of chemistry they may be. Let us rather encourage these chemists to till the soil and feed us bread.

We sometimes think we have an oversupply of brands of breakfast foods on the market, but they are like Gideon's band compared with the whole Philistine army of headache cures or rheumatism remedies.

Speaking of breakfast foods and drugs, it seems whenever a numbskull with a fat pocketbook concocts a breakfast food and burns and frazzles it, or loads it with husks or hulls so it isn't fit to eat, he brands it as a medicinal agent, claims that it nourishes the brain, soothes jaded nerves, cures constipation, etc., and then, with the aid of a cunning advertising agent, he proceeds to wax opulent. I am not far from the truth when I say that whatever in nature is not fit for food is, or has been, classed as a drug. There is surely food for reflection in this.

I have enlarged on this matter of the scope of the term drug in order to emphasize what a colossal task is before those of us who are charged with the enforcement of the Food and Drugs Act. It will take time and money and brains and courage, lots of each, to carry out the intent of the Congress and the wishes of the people in this regard. To enforce the law in respect to drugs will require more courage, more money and a higher order of chemical knowledge than in respect of foods, because of the relative difficulties of the problems involved. The analysis of foods is by no means an easy task, but the examination and analysis of drugs, simple or mixed, are usually more complex and difficult, for reasons that are obvious. And yet there are those who criticize the Chief of the Bureau of

Chemistry for the employment of a Rusby at \$20.00 a day or a Kebler at a salary that is but little beyond the cost of living at the present day.

But coming to the subject of this paper—What is it that constitutes adulteration of drugs? To what extent and in what manner is it practiced at the present time? According to Section 7 of the Food and Drugs Act, a drug is regarded as adulterated, first, if when sold under or by a name recognized in the United States Pharmacopœia or National Formulary, it differs from the standard strength, quality or purity, as determined by the test prescribed in those standard texts. This fundamental principle is qualified or modified by the provision that no such “official” drug shall be deemed adulterated if the standard of strength, quality or purity be plainly stated on the label, although the quality may differ from the official standard. In the second place, a drug is held to be adulterated if its quality, strength or purity fall below the professed standard or quality under which it is sold.

It is plain that these two clauses of the law defining adulteration affect only a small proportion of the vast number of drugs and medicines that have just been mentioned. In fact, broadly speaking, the crude and refined natural drugs and the manufactured, synthetized chemical compounds used in medicines, together with the simple extracts, tinctures and solutions of them, are the only classes of drugs clearly affected by these provisions. To the remaining tens of thousands of legally defined drugs, proprietary medicines, “patents,” etc., the law does not apply as to adulteration, but only in regard to branding.

Although the stated purpose of the act is to prevent the manufacture and sale of adulterated, or misbranded, or poisonous, or deleterious foods, drugs and medicines it is obviously anomalous to attempt to restrict traffic in poisonous or deleterious *drugs* and *medicines*. A very large proportion of the known drugs are poisonous and hence would be deleterious. Many of them are potent, virulent poisons. Drugs stripped of their poisonous ingredients in many cases would be adulterated within the meaning of the law. When one speaks of a *deleterious medicine*, he should immediately qualify his remarks to clear up the antithesis. In fact, the statement that any substance is deleterious should always be made guardedly, owing to the range of tolerances of the human system and the idiosyncrasies of individuals. For instance, we may say that acetanilide is deleterious, but one person may consume a whole case of “Bromo Seltzer” without turning blue, while another may show the symptoms of acetanilide poisoning by merely looking at the stuff through the bottle. Lord Byron said:

“’Tis pity wine should be so deleterious.
For tea and coffee leave us much more serious.”

When sifted, therefore, the Food and Drugs Act aims to prevent traffic in adulterated and misbranded drugs. This aim is high enough. I have no doubt that each of you gentlemen has observed time and again the beneficent effect of the law and has noted the improvement in the quality of drugs, especially the crude drugs, sold to you.

In the drug markets of the world there are today, as there have been since the beginning of pharmacy, two classes of merchandise, the genuine and the adulter-

ated. How closely the Century Dictionary definition of "drug" differentiates between these two classes, viz:

"(1) Any vegetable, animal or mineral substance used in the composition or preparation of medicines.

"(2) A thing which has lost its value and is no longer wanted; specifically, a commodity that is not salable, especially from overproduction, as a *drug* in the market."

A genuine, pure drug is a thing worth while; a trusty weapon in the hands of the physician and a boon to the sick. But a drug that isn't a drug, the thing that has lost its value, its potent principles, should find no place in the pharmacist's stock. Adulterating food is bad enough, but the adulteration of drugs is so infamous that inquisitorial punishment is none too severe for him who stoops to practice it. In about the proportion that the number of those in good health is vastly greater than those in sickness, the adulteration of food affects almost entirely the healthy. The sophistication of drugs, however, reaches those utterly unable to help themselves. Life itself may depend, as it often does, upon the purity and strength of the medicine administered. The suppression of frauds of this sort is work that one may well feel proud to be engaged in.

Thank goodness, there is not nearly so much of the adulterating business going on as formerly, but enough to make it necessary to keep our eyes open and other senses alert. Among the 1250 Notices of Judgment in food and drug cases, as published by the Secretary of Agriculture, covering a period of five years, 309 have to do with drug products. In most of these cases, technical charges of misbranding are brought, such as failure to declare the amount of the prescribed drug, like alcohol, acetanilide, etc., false therapeutic claims and the like. In only fifty-five of the cases could charges of adulteration be made. This is bad enough, to be sure, but it does show, to my mind, a wholesome condition of the American drug market. The explanation of this remarkable state of affairs, I believe, is to be found in the manner of enforcement of Section 11 of the Food and Drugs Act, pertaining to the inspection of imported foods and drugs. You are all aware that most of the crude drugs, the raw materials for medicines, are not home-grown (as many of them could and should be), but are imported from Europe and the other three corners of the earth. Mountainous piles of herbs and roots, barks and leaves, flowers and seeds, oils and gums, resins and waxes, crude drugs all, are unloaded daily on the wharves of New York. Smaller mountainous piles come in bond by rail to Chicago, while other smaller ports receive their proportionate shares. At each of these places are stationed men, employees of the Bureau of Chemistry, whose duty it is to inspect every invoice of drug products and determine whether the material is fit to enter into the commerce of the country. That which is unfit is either destroyed or deported, or else it is purified before being released by the custom officers. The Department of Agriculture employees coöperate with the customs authorities in the enforcement of this section of the law. At New York, where the major portion of the drug imports are entered, Dr. H. H. Rusby holds forth as expert pharmacognosist, and Dr. Seil as pharmaceutical chemist. He is a clever smuggler indeed who can escape these two men and succeed in entering spurious or adulterated drugs. The reports of the findings of these drug laboratories make interesting reading, and show the trend of the

practice of drug adulteration. I have noted here a few of the more striking cases of adulteration that may be of interest to you:

Belladonna and henbane leaves, aloes, jalap, sage, cubebs, ergot, hydrogen dioxide, calcined magnesia, and many others have been found to differ widely from U. S. P. requirements.

Some of the most serious forms of adulteration and substitution are as follows:

Codeine, morphine and aspirin in the form of pastilles and confections, condemned as being dangerous to health. Digitalis leaves, decayed; cumin seed, broken and full of dust; gum tragacanth, mixed with other gums, dirt and foreign matter, all unfit for medicinal use; iron by hydrogen, containing an excess of arsenic; oil of cajuput, with copper; oil of cassia, with lead, copper and rosin, are examples of another type of adulteration.

Anise, fennel and quince seeds, cubeb berries, gum myrrh and benzoin, uva ursi, buchu and senna leaves, etc., have been repeatedly found with excessive amounts of dirt and foreign matter, sometimes as high as 40 to 50 per cent.

Scopola has frequently been found substituted for belladonna root, pokeberry leaves for belladonna, long buchu for buchu, and artificial camphor for the natural gum. Such substitution is nearly always intentional and is the more pernicious and more to be condemned on that account.

The number of such cases, as I have here enumerated, is becoming smaller and smaller every month, showing the wholesome effect of the law. Of course, it is not to be inferred for a moment, even if the drugs are pure when they are passed by the customs officials, that such high quality will be maintained until they reach the consumers. A single illustration, cited by Dr. Rusby, will emphasize the point. A New York jobber in crude drugs nearly fainted on being told that his ground belladonna root contained 50 per cent. of olive pits, but soon learned from his own investigations that the miller, to whom he sent his fine drugs to be ground, was systematically abstracting a portion and substituting adulterants. Rascals there are in this country, as well as in Europe and elsewhere.

Then, too, it must be borne in mind that not all drugs are imported, though a large proportion of the crude and powdered ones are. In working toward the ideal of a pure drug and medicine market, wherein no adulterator can gain a foothold, we must not overlook this fact. We must keep as careful a watch over state and interstate traffic as we do of the foreign.

Most of the cases of adulteration observed in the inspection of interstate samples are in the same category with those noted for imported products, viz., failures to conform to Pharmacopœia specifications, substitution of cheap, inferior material for the more expensive or high grade; for example, senna siftings for leaves, acetanilide for phenacetin, mixing the product with dirt and inert vegetable debris. This is an exceedingly raw, offensive sort of adulteration. When one buys drugs that are as "cheap as dirt," he usually gets what he pays for.

The U. S. Government has been seeking for a long time to control the quality of drugs that enter into the commerce of this country. Reviewing the history of drug adulteration, Dr. L. F. Kebler has pointed out that as early as 1840, federal officials were investigating the extent of adulteration of drugs, medicines and chemicals offered for entry at the various ports. Due largely to the efforts of Dr. M. J. Bailey, then examiner of drugs at the port of New York, a federal law

was passed governing the importation of adulterated and spurious drugs. The law became effective in 1848. In his testimony before the Congressional Committee, Dr. Bailey stated that at least one-half of the drugs imported through the customs house at New York were adulterated or had deteriorated in value so that they were not only worthless for medicinal use, but were often dangerous. Plainly, we are making progress against the practice of adulterating drugs.

That section of the law which pertains to the branding of drugs, undoubtedly was intended by the enactors to define clearly and positively the term "misbranded" in its relations to medicines and was aimed to destroy that flagrant and growing evil, which you gentlemen know has been the curse of the pharmacist's business. That the clause of the act relating to misbranding is not comprehensive enough to secure much needed reforms has been shown by recent adverse decisions of the courts. The effect of the decision of the Supreme Court in the Johnson Cancer Cure case has been seen and keenly felt by us. It was promptly and painfully retroactive. The liberty to lie was plainly given in this sweeping decision and was quickly taken advantage of by the unscrupulous compounder of drugs and the medicine fakir. I trust I shall not be misunderstood in what I have said directly and by inference about proprietary mixtures. There is no doubt a legitimate place in the drug business for many of them, providing, as Nelson says, they do not contain any actively potent ingredients, or, containing these, state clearly their names and amounts, with a suitable caution to the consumer.

It is not the fellow who is making and marketing an honest, meritorious medicine, and who conforms to the ethics established by your association, who arouses my wrath and deserves and gets the curses of his fellowmen and the condemnation of the courts. But the rascal who puts a little worthless, highly colored, foul smelling, vile tasting fluid in a bottle and sells it for a dollar or more, by dint of extravagant language, forceful suggestion and plausible lies, merits all that blind, outraged justice can hand out to him. It is not the rich who are robbed by such fakirs, but the poor who seek to avoid the physician's fee and the prescription clerk's charges. Therefore more is the pity!

I appreciate that I do not need to harangue to you gentlemen about the evils of adulteration and misbranding of drugs. You recognize much more fully than I the effect of these frauds, and are just as anxious to have them stopped. I am not a pessimist. The Food and Drugs Act is a good law, and has done much good. During the last five years in which it has been enforced, a whole lot of cleaning up has been accomplished. The weak spots in the law have been found out, and an effort is now being made to strengthen it and make it "fraud" proof. The Post Office Department has helped us greatly to put an end to many a bad medicine business by issuing "fraud orders." Your association, too, collectively, and individual members personally, has been immensely helpful to the Bureau of Chemistry in its work of enforcing the Food and Drugs Act. Your friendship, your encouragement and advice and the whole effect of your policy, standards and ethics, as shown in your publication, the National Formulary, are all deeply appreciated by the Bureau, especially by Dr. Wiley and Dr. Kebler. I trust this cordial coöperation may continue, and I believe it will.

DEVELOPMENT OF THE NATIONAL FORMULARY.*

C. M. SNOW.

The preparation of this paper has developed so many, to me, interesting bits of history, that I beg your indulgence, if it seems to partake of the nature of a paper for the Historical Section, rather than a discussion of the new National Formulary.

It seems to be quite universally accepted, that the attention of the American Pharmaceutical Association was first directed to the necessity of preparing a formulary of unofficial remedies some time about 1880, but upon consulting the very first volume of the proceedings of this Association, we find that in 1856, Mr. John Meakin, president of the Association, offered the following resolution, which was adopted: "Resolved, that with the view of more effectually carrying out the expressed wish of many of the members of this Association, for the compilation of unofficial formulas in local use with many physicians of our Union, a committee be appointed to collect such and report to the next meeting."

In accordance with this resolution, a committee of ten was appointed and the report at the next meeting shows that formulas for eighty-three preparations were submitted and adopted. The committee also recommended that these be appended to the pharmacopoeia for convenient use, but this recommendation seems never to have been carried out.

The following is one of the formulas contributed by a Boston member:

TINCTURE OF ALKALI COMPOUND.

Hard Wood Ashes.....	O. ii
Common Soot.....	Wineglass, i
Aquae	O. vi
M. Digest, settle, filter and sometimes add	
Opil Tinct.....	dr. ii to
oz. iv of the mixture.	

Dose: Tablespoonful 3 times each day.

While this seems to be the first mention made of an unofficial alkaline solution, we do *not* claim for it that it is the "original" Liquor Antisepticus Alkalinus.

The work of the committee was evidently looked upon with much favor, as it was continued and its membership increased to fourteen.

The next year the committee reported nineteen formulas.

The following paragraph of the report indicates, that the first as well as all subsequent committees on non-pharmacopoeial formulas was subjected to rather unjust criticism:

"Your committee regret that they have been compelled, through the misconception of a few, to disclaim any desire to collect the formulae for nostrums or proprietary medicines; feeling assured that the Association has no affinity with such, they had hoped that the purpose of the committee would not be thus

*Read at the February meeting of the Chicago Branch.

misconstrued and desire that the result of their labors may contribute to the usefulness of the Association."

The committee was then discontinued.

It was in the early '70s that the physicians seemed to have first strayed away noticeably from the remedies found in the pharmacopoeia. This condition was, no doubt, much influenced by the manufacturing pharmacists, who had by this time become very active in placing on the market, preparations made up with vehicles of sweetened, aromatic, hydro-alcoholic liquids.

The mercantile tourists in the employ of the manufacturers were as energetic in the introduction of these proprietaries, as they are at the present time, laying great stress on the "elegant pharmacy" of which these mixtures were representatives.

Under the conditions in those days, we recognize another confirmation of the saying "There is nothing new under the sun"; for then, as now, the pharmacists came forward with the complaint, that they were obliged to carry the nostrums of every manufacturer to be able to faithfully fill the orders of the physicians, the physicians as long as thirty-five years ago specifying some particular manufacturer's product. The pharmacists of that day were confronted by the same conditions as those which have led to the strenuous efforts of the active associations of the present day in their diligent struggle for the maintaining of the uniformity of formulas and to present to the physicians the value of adhering more closely to the preparations of the pharmacopoeia and particularly the National Formulary, which is practically the outcome of similar conditions beginning forty years ago.

As early as 1883 members of the American Pharmaceutical Association pointed out the alarming increase of proprietary medicines, as is evidenced by the following extract from the proceedings of that year: "It is ordered that a committee be appointed to present at the next meeting of the Association a list of non-official formulas, such as would meet with the requirements of the pharmacists of the country in enabling them to prepare such of the various elixirs, emulsions, fluidextracts, wines, ointments, etc., as are prescribed by the medical fraternity and supplied by manufacturing chemists, through the wholesale trade and otherwise. Although differing slightly, the preparations supplied by so many different firms are in the main identical. Yet in order to be able to comply faithfully with the demands of the physicians, all these kinds must be kept in stock, greatly to our detriment, and we think, in the end, to the consumer. Seeing this to be the case, efforts have been made in the different pharmaceutical bodies to remedy the evil, by furnishing formulas which the average pharmacist could prepare himself and dispense with the assurance that they contained the ingredients specified and of the best quality. The result if attained would be advantageous to the physician, pharmacist and patient alike, both therapeutically and financially, and remove the source of much annoyance and misunderstanding, as at present, a prescription filled in one locality, if refilled in another where the dispenser is not familiar with the requirements of the prescriber, unless some particular maker's preparation is specified or formula furnished, is likely to have the preparation returned, with many unflattering comments—resulting too

often in the loss of a customer." The resolution was adopted and a committee appointed, the personnel being:

J. W. Colcord, Lynn, Mass.
S. A. D. Sheppard, Boston,
Ewen McIntyre, New York,
J. T. Shinn, Philadelphia,
N. H. Jennings, Baltimore,

Chas. Becker, Washington,
J. D. Wells, Cincinnati,
M. W. Alexander, St. Louis,
C. L. Keppler, New Orleans,
E. T. Cowdrey, Chicago,
Emlen Painter, San Francisco.

But at even an earlier date than this, the members of the several pharmaceutical bodies of New York and Brooklyn, recognized the need and advantage of something to unify the different formulas used in these and adjoining cities. At a meeting of the New York College of Pharmacy, the German Apothecaries' Society and the Kings County Pharmaceutical Society, a joint committee was selected representing the best talent in the different societies and cities. This committee labored diligently and in an incredibly short time provided a particularly good volume, styled *The New York and Brooklyn Formulary*. The following introduction was printed in this Formulary:

To the Medical Profession:

The favor with which some of the preparations of the so-called "Elegant Pharmacy" have found with the medical profession during the past ten or fifteen years, has induced many manufacturers of Elixirs, Syrups, Emulsions, etc., to vie with each other, in the introduction of new combinations or to imitate each other's products, as soon as any of the latter appear to have acquired a ready sale. Quite commonly each manufacturer claims for his particular products the distinction of "superiority of manufacture" and "purity of materials." The physician prescribes the several makers' products in turn and thereby compels the pharmacist to provide himself with separate packages of each maker's preparations, many of which are left on his shelves, after the first or second call, so that the collection, finally, represents quite a respectable investment or rather a dead loss, since the articles deteriorate more or less rapidly and can not be sold in the market. Recognizing the ephemeral character of such products and relying on the further support on the part of the medical profession, the manufacturers keep on increasing the number of their preparations, and do not fail to present sample bottles of each to the physicians, who, thereupon, frequently prescribe them one by one and thereby increase the pharmacists' dead stock—an everlasting reminder of poorly invested capital.

The practice leads to another deplorable evil, namely to this, that the patient knowing the names of the articles and of the manufacturer, will procure them subsequently on his own responsibility, at wholesale prices, without further reference to the physician or pharmacist. These goods, also, induce unscrupulous and uneducated people to play doctor, since the labels pretend to give all sorts of therapeutic information, recommending the contents in this or that disease and specifying the doses to be administered. Naturally, this intolerable annoyance is sorely felt wherever it exists. It has been prescribed and publicly denounced by the representative pharmaceutical bodies of New York and Brooklyn and delegates were chosen from each over a year ago, to form a joint committee which should devise and publish practical formulas for such preparations of the "so-called" "Elegant Pharmacy" as appear to have established a claim to recognition and have survived out of the endless number offered to the medical profession.

With this modest little book, which is herewith respectfully submitted, the Joint Committee offer to the physicians and pharmacists of our sister cities, the result

of their thoughtful labor and skill—a result reached only through a large number of experiments made especially for the purpose. The Joint Committee would respectfully request the medical profession to abstain, hereafter, from designating the maker's name of any preparation for which a formula is found in this pamphlet. Thus both physician and pharmacist will be sure to obtain uniform preparations, no matter where they are dispensed.

At the time the efforts of the American Pharmaceutical Association Committee on National Formulary had crystalized into the adoption of the work by the Association, the New York and Brooklyn Formulary was in the process of its third revision. It is interesting to note that the Formulary contained receipts for the making of eighty-three preparations, and of these fifty-two were elixirs. It must have been especially gratifying to the Association to have this Formulary offered in toto, as a nucleus for the proposed National Formulary, as adopted at the meeting of the Association at Pittsburg, in 1885. The New York and Brooklyn Formulary was offered and accepted at the same meeting. The gratitude and appreciation of the Association is shown in the personnel of the Committee on National Formulary chosen at that time:

Dr. Chas. Rice, Chairman,
P. W. Bedford,

W. P. DeForest,
S. J. Bendiner,

A. Tsheppe.

Four of these gentlemen being members of the Editing Committee, which tendered the New York and Brooklyn Formulary to the Association. As an indication of the ability of the Chairman of this Committee, let it be remembered, that he was selected as Chairman of the Revision Committee for the Pharmacopœia for 1890 and 1900.

This committee was instructed by resolution to continue and complete the revision, then so well under way, with a view to making it national in its character.

The following year the committee was directed to prepare a preliminary draft of the National Formulary, which was to contain all the work done up to September, 1886. This draft was published in the proceedings of the Association for 1886, reprints were also made and circulated. The draft contained formulas for 414 preparations, and many of them enjoy much favor today.

At that time the committee also submitted a number of recommendations, the first of which was on the scope of the National Formulary and anent the discussion of what shall and what shall not be admitted into the coming revision, you will be interested in hearing what the founders of the work intended to have appear on its pages.

“SCOPE OF THE NATIONAL FORMULARY.”

“The National Formulary to be published under the authority of the American Pharmaceutical Association, may contain the formulas of such preparations as have either been formerly official in the United States Pharmacopœia and have been discarded, though still in demand; or such as have never been official but deserve recognition, because more or less in general use. Among the latter, may be any preparation contained in foreign pharmacopœias if there is known to be a sufficient demand for them, in any section of the country. It shall also contain the preparations belonging to the so-called ‘elegant pharmacy’ but it shall not be encumbered with purely technical, trivial or fancy preparations.”

From this it may be clearly understood, that it was not the intent of these earnest and, beyond question, most able pharmacists, to have "test-tube doctors" and pharmacists who do not practice pharmacy, dictate the make-up of the book.

It is my contention, that if any considerable number of real physicians use any remedy for the relief of the sick, such remedy should be recognized by the National Formulary and directions given for its uniform preparation, no matter how rabidly it may be attacked by those men who have taken the didactic work prescribed for the degree of Doctor of Medicine, but who practice only in glass, in laboratories.

You need not be told that it will matter not one iota to the physician who uses the drug with success, whether or not it is in the Pharmacopoeia or National Formulary; he will continue to use it just the same. And you may rest assured, too, if directions for its preparation are not given in the official volumes, the manufacturers will prepare it and each will vary the combination sufficiently, so that when it gets to the physicians, you will have to stock another dozen or so forms of an additional preparation.

The first issue of the National Formulary was published and circulated in 1888 and contained 435 formulas.

The first revision appeared in 1896 and gave formulas for 454 preparations. The greatest innovation in this volume being the adoption of the metric system of weights and measures, and which, according to the preface, "placed the National Formulary abreast of the times and its text in harmony with that of the United States Pharmacopoeia of 1890."

Our good friend, Professor C. Lewis Diehl, was Chairman of the Committee on National Formulary at the time, having been so appointed in 1888, and we are pleased to say, still continues in that responsible position. The third issue of the book, and the one now official, came out in 1906. It was delayed because of the belated appearance of the eighth revision of the pharmacopoeia. This time the Formulary gave the quantities, not in the metric system alone, but in the apothecaries' as well.

The conversions necessary, because of the two systems, were arduous, and proved to be a serious handicap to the book. Because of the slight variations in changing from one system to the other, more complaint came than from all other criticism together. Average doses were introduced for the first time. Still another innovation was the separation of the obsolete pharmacopoeial preparations from the main text of the book and collecting them in an Appendix. Forty-nine new formulas were added, 617 formulas in all.

Hardly had the second revision been issued when the highest possible honor came to the Formulary, for it was in that same year that it was designated as a standard for the administration of the Pure Food and Drugs Act.

Let us all here understand that to no one, so much as to our beloved and lamented benefactor, Albert E. Ebert, is due the credit of bringing this honor to the Formulary.

Being now made a legal standard, the Formulary was promptly attacked from all sides, not only for the errors it did contain, but because of the definitions for standards it did not contain.

Appreciating the responsibility now carried by the National Formulary, the Association urged its early revision.

At this time the Committee on National Formulary comprised only five members, with an auxiliary committee of ten. In 1908, the Association met at Hot Springs, Ark., the Committee on National Formulary convened a few days in advance of the regular meeting and did an immense amount of work on the Formulary.

The following are some of the recommendations of the Committee which were adopted at that time:

That the Committee on National Formulary consist of fifteen members, selected by the Council of the Association, for the full period of the revision.

That the book be called simply, The National Formulary.

That the strength of the preparations be stated, as so many grams in one hundred cubic centimeters.

That the metric system alone be used.

That all formulas be in uniform style.

That a statement be inserted in the preface to the effect that the National Formulary does not assume any responsibility for the therapeutic value of any preparation, and that the question of *additions* and *eliminations* be decided on the basis of *commercial demands*.

That suitable definitions for unofficial ingredients be inserted.

That the term "Appendix" be eliminated and the book be designated as parts one and two.

That no trade-marked titles be introduced.

The nomenclature, titles and synonyms should be in conformity with the U. S. P. or with modern ideas, should be descriptive of composition and that therapeutic or anatomical titles should be discouraged.

Authority given to the Committee to establish a specific date on which the next edition of the National Formulary go into effect.

The Chairman has divided the Committee into four subcommittees.

To Subcommittee "A" is intrusted the task of defining and if necessary establishing standards for ingredients not now official. This subcommittee has six members, divided into two groups of three members each.

To Subcommittee "B" is assigned the task of working out formulas for new preparations and this committee has nine members divided into three groups of three members each.

Subcommittee "C" examines and passes judgment on the reliability of the formulas furnished. There are three members of this subcommittee.

Subcommittee "D" is charged with furnishing correct nomenclature and constructing the text of the Formulary. There are three members of this subcommittee.

In the prosecution of the work, all communication is by correspondence, which means of course a considerable loss of time. First the individuals on the subcommittee must agree on the results attained in their assignments and as rapidly as possible forward the findings to the Chairman of the General Committee, who causes bulletins to be issued and mailed to all the members of the committee, for individual review and comment. A little later a vote is taken to determine whether it is the sense of the whole committee that the findings of the sub-

committee be adopted or rejected. By these methods fairly good progress has been made. The Association and the Committee are under many obligations to the Surgeon-General of the Public Health and Marine Hospital Service and to Mr. M. I. Wilbert for the preparation of the bulletins and voting sheets used in this work. Mr. Wilbert, who is a member of the Committee on National Formulary, is also a member of the Surgeon-General's staff and it is under his direction that the bulletins are issued, which keep us so well informed as to what is being done by the different subcommittees.

Since the apportioning of the work as has been outlined, the committee has had two opportunities for personal conference, at Richmond, Va., in May, 1910, and in Boston, August, 1911. At both of these meetings much was accomplished.

One of the resolutions adopted by the Committee authorizes the Chairman to submit through the pharmaceutical press or through the Secretaries of the Local Branches of the American Pharmaceutical Association, for discussion and experimentation, such of the proposed changes and additions as may be subject to additional improvement. In accordance with this resolution some five installments have been published and the responses received, verifies the wisdom of such procedure.

With the adoption of the Pure Food and Drugs Act, it seemed advisable and the Committee was instructed to include in the coming revision, a statement of the alcoholic content of the various preparations. To this end a subcommittee was appointed to make the determinations and entered vigorously upon the work. It now appears, however, that the resolution is of doubtful value. In the first place the P. F. & D. Act applies only to interstate commerce and hardly concerns the retail pharmacist. If now the National Formulary as a legal standard designates a definite alcoholic strength for a particular preparation such strength will be mandatory, and even a slight variation, will in the eyes of the Commission charged with the enforcement of the Pure Food and Drugs Act constitute a violation. You who have had experience in making preparations appreciate how extremely difficult it is to have them always agree in alcoholic strength, because of the condition of the drug, as to moisture when extracted, care in keeping percolator and percolate covered to prevent volatilization and the method of keeping the finished product.

To indicate how closely the Government watches for such violations, a United States Solicitor has had one manufacturer indicted because his preparation varied 1.5 per cent. in alcohol from the statement made on the label. Now we know that the average manufacturer is in a better position to determine and adjust alcoholic percentages than is the retailer and unless a liberal range is permitted, such statements are rather likely to prove a burden than a benefit to the retail pharmacist. Under these circumstances the Committee is quite ready to recede from its original position, for the present. It does, however, seem that the statement of alcoholic content of preparations should be given in the succeeding revision as it is desirable information and the fact that so many of the States are framing food and drugs acts to conform to the Federal Act will probably make it necessary for the retailer to sooner or later give the alcohol percentage of preparations on the label of his products and the Pharmacopoeia and National Formulary should supply this data.

The matter of standardizing the coloring agents of the Formulary, tinctures of cudbear and caramel, has received the very earnest attention of a number of the ablest members on the Committee and it seems quite likely that in the fourth edition, we shall have the means of ending the trouble now so persistent in the use of these coloring media, the inability to get shades in preparations to agree at different times. Perhaps the greatest innovation in the way of new preparations is the introduction of Fluidglycerates. These are of the same strength of the fluidextracts but contain no alcohol, hence mix clear with aqueous solutions. Another matter that has somewhat perplexed the Committee, is, how far shall it be influenced by manufacturers, as to the admission or exclusion of formulas. Another of the added features of the book which is taking a great deal of time, is the preparation of the standards and descriptions of the articles which enter the preparations but for which no standards have before been offered. These will approximate 500 and will probably be grouped in Part II of the book. Up to the present time no one has ventured a definite statement, as to when we might expect to have the new book for use, but it does seem now that we may reasonably expect it before the coming meeting of the Association in Denver. In closing, permit me to say, that from the matter contained in the bulletins thus far circulated, I truly believe the retail pharmacist will find in the "N. F. IV" the most perfect and valuable book ever offered to American pharmacists.

THE RICHARDSON BILL.*

F. W. NITARDY.

The December issue of the *Western Druggist* contains an editorial entitled, "A Bill to Kill All Ready-Made Remedies." The article in question regards the Richardson Bill as a "Doctor's bill designed to destroy practically every proprietary medicine; to prohibit any druggist putting up a line of his own remedies, and to compel every person to be held up for a doctor's fee every time even the simplest remedy is needed."

Copies of the editorial in question must have been sent broadcast over the country. Several Denver dailies mentioned it and one printed the entire article under big headlines "Druggists Protest," or something similar.

That the article referred to does not express the sentiment of the retail druggist is very clear to any one familiar with matters pharmaceutical.

Both the *JOURNAL* of the A. Ph. A. and the *N. A. R. D. Notes* speak of the Richardson bill in quite different terms, and these journals are representative, published by and in the interest of druggists, and cannot be bought to advocate or denounce a certain measure as may suit the buyer.

In the issue of February 8 of the *N. A. R. D. Notes*, the editor speaks as follows:

"Notes and the *N. A. R. D.* are not in favor of the passage of the Richardson bill in its present form.

"Notes and the *N. A. R. D.* are in favor of the principle of the Richardson bill."

*Read before the Denver Branch.

The following resolutions passed at the Niagara Falls convention, are quoted as the basis of the stand of the N. A. R. D. on the Food and Drug Act Amendment question:

"Resolved, That this association favors an amendment to the Pure Food and Drugs Act that will protect the public against unwarranted claims of nostrums and will provide that the manufacturing of medicinal preparations be in the hands of licensed pharmacists.

"Resolved, That this association favors interstate anti-narcotic legislation that will prohibit all illegitimate traffic in narcotics and habit forming drugs, and confine their sale to proper channels and uses to strictly medicinal purposes; and

"WHEREAS, Section 7 of Regulation 7 of the Food and Drugs Act permits the sale of U. S. P. and N. F. preparations of various strengths, providing such strength is designated on the label; and

"WHEREAS, Such provision causes much confusion in the enforcement of pharmacy laws, providing for the use of U. S. P. and N. F. names on drugs of standard strength alone; therefore, be it

"Resolved, That this section should be repealed or so amended as to provide that all drugs sold to the public under their official names or recognized synonyms, shall be of standard strength."

The stand taken by the editor of "Notes" is very well taken indeed. He also states in his editorial that: "We have it from inside sources that the bill in its present form is merely tentative; that its sponsor freely acknowledges that some of its provisions are in conflict with each other."

It seems to be the intention of the bill to confine the manufacture of medicinal products to pharmacists and physicians, to which I can see no reasonable objection, and for the druggists this should be a good thing. It enlarges the scope of the Food and Drugs Act by including toilet preparations and tobacco, also a good provision.

Like our present law it permits the deviation from the official standard in official preparations, which I believe is wrong. At least this point should be well considered before the amendment takes its final form.

Some time ago I ordered a pound of Hypophosphorous acid U. S. P. from a local jobber, and received an article labeled as follows:

"HYPOPHOSPHOROUS ACID 50 PER CENT.

"This article yields a precipitate with ammonia water and the filtrate a turbidity with barium chloride test solution. Guaranteed under the Food and Drugs Act, etc."

To one not well posted on the chemistry of the reactions involved, such a label has little meaning. He would not know if the note indicated that the article was of official quality or not of official quality without consulting the U. S. P. tests for the purity of Hypophosphorous acid. Still the label is legal. This illustrates the farce of the system of labeling articles not up to the official standard.

The list of interdicted drugs in the Richardson bill is rather large. It is probably intended in this bill as in the present law that an article is to be considered misbranded if any of the articles named are present and not mentioned on the label, however, the bill is not clear on this provision. It seems that some of the articles included in this list may well be omitted.

The bill should be studied by every druggist and discussed at association meet-

ings and the results published. Some amendment along this line is necessary and will no doubt be made, but if we do not do our duty and take proper interest in these matters, amendments may be passed by Congress that will prove burdensome to us.

HINTS ON PROPOSED N. F. FORMULÆ.*

LOUIS SAALBACH, PHAR. D.

The formula proposed for *Mistura Ferri Salicylatis* is as follows:

MISTURA FERRI SALICYLATIS.

Sodium salicylate	125.0 Gm.
Tinct. of ferric chloride.....	125.0 Cc.
Ammonium carbonate	6.5 Gm.
Citric acid	14.0 Gm.
Oil of betula.....	4.0 Cc.
Glycerin	175.0 Cc.
Distilled water enough to make.....	1000.0 Cc.

Dissolve the citric acid in 200 Cc. of distilled water, add the ammonium carbonate and then dissolve the sodium salicylate in this solution. Add the tincture of ferric chloride, glycerin and oil of betula; mix, and then add enough distilled water to make 1000 Cc. and filter. When prepared according to the above formula and instructions, a heavy precipitate forms. This consists of ferric salicylate and salicylic acid. The ammonium carbonate and citric acid are used in this formula to make ammonium citrate, in a solution of which, ferric salicylate is soluble.

There is insufficient ammonium carbonate present to convert all of the citric acid to citrate; furthermore, the salicylic acid also requires an alkali to keep it in solution.

Good results may be obtained by increasing the quantity of ammonium carbonate to 25 grammes and mix as follows:

Dissolve the citric acid in 300 Cc. of distilled water, add the ammonium carbonate, and when solution has been effected add the glycerin, then the tincture of ferric chloride, in which the oil of betula has previously been dissolved, and finally enough distilled water to make the mixture measure 1000 Cc.

When prepared in this manner a clear dark red solution is produced, which does not require filtration.

PETROXOLINUM LIQUIDUM.

Liquid petrolatum.....	50 Gm.
Oleic acid.....	28 Gm.
Oil of lavender flowers.....	2 Gm.
Stronger ammonia water.....	5 Gm.
Alcohol	15 Gm.

Mix the liquid petrolatum and oleic acid in a flask, add the alcohol and then the stronger ammonia water, and warm the mixture on a water bath with frequent

*Presented to the Pittsburgh Branch.

agitation, until it becomes clear. Lastly add the oil of lavender flowers and mix thoroughly.

By comparing this formula with that of Liquid Petrolatum Saponatum now in the N. F. the substitution of stronger ammonia water for spirit of ammonia will be noted. This is undoubtedly a wise change, when we consider that the ordinary drug store does not usually have spirit of ammonia upon its shelves. Or when it has, it is deficient in strength.

The mode of preparation may, however, be improved upon. By following the above instructions, a clear mixture is produced within five minutes after placing on a water bath. But on cooling it frequently separates into two layers. In the writer's experience this happened three times in succession.

Uniform results may be rapidly obtained when we proceed as follows:

To the oleic acid contained in a flask, add the stronger ammonia water, and alcohol which have previously been mixed. Shake well, and when completely saponified, add the liquid petrolatum and oil of lavender flowers. Mix thoroughly by shaking.

CORK.*

ITS HISTORY, ORIGIN AND MANUFACTURE.

OTTO RAUBENHEIMER, PH. G.,

The writing and reading of a paper on Cork may seem trivial to a great many, but I have been prompted to undertake this task for the following two reasons:

1. The average pharmacist, who uses corks daily and considerably, has but very little knowledge of the source and manufacture of that necessary commodity.

2. The books in English, especially the books available to the pharmacist, f. i., those on pharmacy and botany, and also the dispensaries, have nothing or but very little to say as to the history, origin and manufacture of cork. Through an introduction to the owners of one of our large cork factories in Brooklyn I had the good fortune of visiting their plant in operation, thus obtaining a great deal of practical knowledge.

Just as the venerable oak, the monarch of the trees, the patriarch of the forests, has been known from times immemorial and its bark has been used in tanning, so another species, the cork oak, has been well known to the ancients and five of the chief properties of its bark were known and utilized 2000 years ago.

Theophrastos, 400 B. C., the father and founder of botany, describes the cork oak in his great work, *Historia Plantarum*. He calls the tree "phellos," and gives its habitat as the Pyrenees, and also describes two varieties, one an evergreen, our present *Quercus suber*, L., the other losing its leaves in the winter, our present *Quercus occidentalis*, Gay. Theophrastos also states that "phellos" produces a thick, fleshy bark, which when stripped off will grow again and makes

*Read and demonstrated with specimens at the March meetings of the New York Branch of the A. Ph. A. and the Kings County Pharmaceutical Society.

the tree more vigorous. This bark is so light that it never sinks in water and is therefore used for a variety of purposes.

At the time of the early Roman empire, cork must have been used to close wine vessels, because the poet Horace, about 25 B. C., speaks of removing the *cork sealed with pitch* from a jar of wine 46 years old.

Pliny, 50 B. C., the great Roman historian, in his wonderful work, "Historiæ Naturalis," written in the first century of the Christian era, corroborates the statements made by Theophrastos. In describing the tree he also remarks that the acorns are bitter and of the worst quality. He names the cork "Suber" and mentions the following uses for it:

1. As floats for the nets of fishermen. This especially is shown in the case of the drag-nets, where the upper edge of the net should be kept at the surface of the water.

2. As buoys for ships' anchors. They were called "ancoralia," and by being attached to the anchor rope floated on the surface of the water and indicated the position of the anchor. These buoys also served to attach smaller boats when in the harbor. Inasmuch as today blocks of wood or empty casks are used for this purpose, the Dutch sailors originated their proverb, "He has a head like a buoy," that is, a "block head."

3. As soles or insoles for shoes, in order to secure dry feet, especially in the winter, and as high heels were not in vogue at that time, the Roman ladies, who wished to appear taller than they had been formed by nature, put plenty of cork under their feet.

Marcus Terentius Varro (died 27 B. C.), a contemporary of Cicero and Caesar, the great Roman polyhistorian, in his work "De Re Rustica," speaks of cork or suber as a non-conductor of heat.

Lucius Junius Moderatus Columella, the celebrated Roman agronomist, often called the father of agriculture, in his book, an authority on the cultivation of medicinal plants, 60 A. D., speaks of the uses of cork, which he names "Cortex" or "Suber" and recommends it for beehives.

Plutarch (born 50 A. D.), the great Roman historian and biographer, in Vita Camilli, informs us of another use of cork, namely,

4. As jackets or life-preservers. He states that the Roman whom Carmillus sent to the capitol when it was besieged by the Gauls, put on a light dress and put cork around his chest and thus succeeded in swimming through the Tiber.

Isidorus Hispalensis (570-636), bishop of Sevilla and last historian of the Roman Empire, in his great work, Etymologiarum, says under "De Re Rustica" that cork is used to facilitate swimming.

If besides these four uses of cork we add the fifth, namely, as stoppers, as pointed out before, then we can readily see that the five principle functions of cork of today were already recognized 2000 years ago.

The Origin of Cork Stoppers.—This use is perhaps most important especially to the pharmacist, being the most extensive and principal use of cork at present. This was not entirely unknown to the ancients as it is mentioned by Horace, Pliny and Cato. Nevertheless the use of cork stoppers could not have been very common, because the works on agriculture and cookery do not mention the same, but

directed the containers to be sealed with clay or pitch, etc. As Italy produced little timber, consequently casks were but little used and had to be brought from the district of the Alps. The wine was kept in the *Apotheca vini*, or special wine cellar, in large earthen vessels with wide mouths, and sealed with clay, pitch or parchment, or the air was kept away by a layer of olive oil. From these the wine for daily consumption was drawn into smaller vessels, as pitchers or jars or bottles which could be stoppered with cork. The Romans had principally two kinds of bottles, the "*lagenæ*" with a long neck and the "*ampullæ*" with a short neck, but there is but very little proof that these bottles were used for wine and were stoppered with cork. It was customary to add a layer of oil to exclude the air.

Saladin of Ascolo or "Asculanus," the celebrated "*Artium et Medicinæ Doctor*," in the middle of the fifteenth century, in his "*Compendium Aromatariorum*," the first book on the practice of pharmacy, does not mention corks but states in the seventh chapter that the vessels were stoppered with pitch or wax. This troublesome and also expensive method lasted until the end of the seventeenth century, when it was replaced in the German Apothecary shops by cork.

In the champagne industry carried on in the monasteries corks naturally became a necessity and credit is given to Dom. Perignon in Epernay, France, for the invention of bottle corks, at least for champagne bottles.

Even today the champagne corks are cut by hand and not by machinery. How the cork industry developed can be seen from the following records. In 1781 the spring of Niederselters, which even to the present day puts up its carbonic water in earthen jugs and not bottles, used 2,208,000 corks, which cost 4 florins per thousand. These were supplied by a merchant at Strasburg, who was supposed to take back the old corks which he cut into smaller stoppers. It is also stated that the demand for smaller corks in the apothecary shops was but very limited.

Synonyms.—Lat.: *Suber*, *Suber Quercinum*, *Cortex Suberis*, *Lignum Suberinum*.

Eng.: Cork, Corkwood.

Spanish: *Corcha*.

German: *Kork*.

French: *Liège*, *Chêne-liège*.

Etymology.—The name "*Quercus*" is derived from the Celtic "*quer*" = nice, and "*cuez*" = tree, indicating the beauty of that venerable tree. "*Suber*" is from the Latin "*sub*" = under, from its use as soles on shoes.

The English word "*cork*," and the German "*Kork*" are undoubtedly derived from the Spanish "*Corcha*," which again comes from the Latin "*Cortex*." "*Cortex*," the bark, is a corruption of "*Contex*" from "*Contego*" = to cover, which again is derived from "*Cum*" = with, and "*tectum*" = roof or cover.

The French "*liège*" is derived from the Latin "*levis*" = light, from the property of cork. In order to avoid any misunderstanding I might also mention here, that Cork, the city of Ireland, did not receive its name from the cork oak, which does not grow in the northern climate, nor from the manufacture of corks, but from the fact of being located on a former *swamp*, which in Celtic is called "*Corroch*."

Source and Habitat.—Cork is derived commercially from the cork oak, prin-

cipally from *Quercus suber* L., an evergreen tree, and to a smaller extent from *Quercus occidentalis*, Gay, which loses its leaves yearly, as already described by Theophrastos. The trees are usually from 20 to 40 and sometimes 60 feet high, and measure 3 to 5 feet in diameter and attain an age of about 2000 years. The wide spreading branches are generally thinly covered with small leaves which are thick, glossy, slightly serrated and downy underneath. The tree flowers during April or May and the yellowish flowers are succeeded by small acorns, which when fed to pigs give their meat a peculiar piquant flavor, which has given a reputation to the Spanish mountain hams.

The cork oak is a native of the countries bordering on the Mediterranean Sea, especially Spain, Portugal, Algiers, and Tunis (Morocco). It requires a temperature of 13° C., and does not thrive beyond 45° latitude. The cork producing territory covers practically all of Portugal and part of Spain, namely Andalusia and Estremadura in the South and Catalonia in the North. The total area covered by cork forests is estimated at about five million acres and the annual production of cork wood is said to be about fifty thousand tons. Some of the very best bark is made into corks in Portugal and Spain, especially in Catalonia, but most of it is exported as corkwood to the United States, England, Germany, Austria, etc. The principal shipping port is Sevilla. France obtains a great deal of corkwood from Algeria.

Cultivation of the Cork Oak.—The preservation and cultivation of the cork trees has been attempted and practiced for some time especially in the southern part of France and Algeria. As early as 1859 a French work was written by Rousset: "Culture exploitation et management du chêne-liège en France et en Algérie." The United States Government in 1858 distributed seedlings and I am informed that in the southern and southwestern section, cork oaks are now growing which in time will furnish cork.

Formation of Cork.—The bark of the cork oak is covered with an epidermis up to its third year, which then bursts lengthwise owing to the growth of the corky layer underneath. The formation of the cork or dead cells or peridermis is done by the inner layer, the cambium, and continues regularly. When the tree is about fifteen to twenty years old it has a diameter of about five inches, or to be more correct, measures forty centimeters, according to the Spanish Government regulations, then the so-called male cork or virgin cork is removed for the first time. This is of very little commercial value, being rough and coarse in texture. The removal of this virgin cork, however, promotes the further development of cork, because the inner bark, or cambium, the so-called mother-cork, undertakes at once the formation of a new covering of much finer texture and elasticity. The cambium with its life-giving sap, forms two layers of cells each year, one within, which increases the diameter of the trunk, and the other without, which adds thickness to the cork. In about eight to ten years, the cork layer becomes about 17 to 26 mm. thick and is then removed. This so-called female cork is more valuable than the virgin cork but is not as fine in quality as the third and subsequent strippings which follow at regular intervals of eight to ten years. The cork oak furnishes the very best quality of cork at the age of fifty to one hundred years; when the tree becomes 150 years old the quality of the cork gets poorer.

Collection of Cork.—This is performed by stripping it off the tree, using great care not to injure the cambium, in which case a reddish liquid will ooze out and no more cork will be formed at that part of the tree. The peeling is done from May to August in Algeria and during July and August in Spain and Portugal. The French in Algeria sometimes use saws, but the Spaniards employ hatchets with long wedge-shaped handles. The bark is cut around the trunk and the branches in several parallel places and the two incisions are then connected by several longitudinal cuts, following as much as possible the deepest of the natural cracks in the bark. By inserting the wedge-shaped handle of the hatchet, the cork is then detached. The thickness of the bark is from one-half to two and one-half inches and the yield varies according to the size and age of the tree from fifty to five hundred pounds. The gathered bark is next removed to the stations where it is put into boiling water in order to soften the cork so the outer bark can be scraped off. This process reduces the weight of the cork almost 20 per cent. The boiling also extracts the tannic acid and increases the volume about 30 per cent. Being now soft and pliable, the bark is flattened and is packed and pressed into bales bound securely with steel bands.

These bales weigh uniformly 106 kilos, or about 224 pounds, so ten of them make an English gross ton.

Manufacture of Corks.—Corks in olden times were of course made by hand, using a very sharp knife. This method is still practiced to some extent in Spain and Portugal. In fact the very best corks, as f. i: champagne corks, are entirely cut by hand. It is said that owing to their unevenness, i. e., on account of not being exactly round, they make much better stoppers.

Sorting of the Corkwood.—The first step is the sorting of the corkwood, for although every bale is stamped A, B, C, D, etc., according to its quality, it is again assorted. It must be remembered that the thickness of the bark determines the maximum diameter, not the length of the cork, as the *cutting is done across and not with the grain.*

Steaming.—As the corkwood is very dry and brittle after its long journey and storing, it is necessary to soften it so as to make it workable. This is done in large covered vats by means of steam. The steaming process makes the corkwood flexible and also slightly increases its bulk and especially prepares it to undergo the following mechanical operations:

Slicing.—By means of a special machine, a slicer with razor-like circular steel knives making hundreds of revolutions every minute, the softened bark is cut into strips, according to the desired length of the cork. It can then be seen that the thickness of the bark determines the maximum width of the finished cork and that the width of the strips represents the length of the cork.

Punching.—From these slices by means of a blocking or punching machine, the straight or cylindrical corks are cut out. This is quite a dangerous operation and many a workman, who has to guide the strips to be punched, has lost one of his fingers.

Straight Corks.—These processes, as we have seen, produce the straight corks.

Tapered Corks.—The corks used in pharmacy are the tapered kind. These are

manufactured from the "straight" variety by passing them through a machine which by means of a very sharp circular knife "tapers" the corks.

Polishing.—In order to produce a very smooth cork, they are polished by rapidly rotating emery wheels.

Bleaching and Washing.—To clean the corks which of course have become soiled through these mechanical operations and in order to give them the white appearance instead of the reddish color of the natural corkwood, they are bleached and washed. This is done in very large vats, the first bath containing a weak solution of chlorinated lime, the second one of oxalic acid. The corks are then rinsed in hot water and dried by whirling in large revolving cylinders of galvanized wire netting. This quick drying is a necessity as in slow drying the corks might develop a mould.

Grading and Assorting.—The last and perhaps most important step is the grading and assorting of the corks. This is done by girls, who in time become expert in this work, which they perform with such rapidity as to assort 20,000 corks during one day's labor.

Storing.—The proper storing of corks is of great importance. They should be kept not too dry nor too damp, as in the former case they become brittle and in the latter they get mouldy. In my own experience I have found the best way to keep the stock in the cellar but not directly on the cellar floor. For the corks in the store I keep a moistened piece of blotting paper in each compartment. This will supply the necessary moisture and saves me a good deal of annoyance by "breaking off" when putting corks into bottles.

Packing.—As is well known to every pharmacist, the corks are packed in five-gross bags. The slow counting has been replaced by the quicker weighing, the weight of each five gross of the different lengths and grades being known to the manufacturer.

Scale of Diameter of Corks.—There is no special rule as to the length of the corks which are usually graded as short, regular, long and extra long. But there is a standard for the diameter of corks, the U. S. Standard. The corks are measured at the upper or larger end and a cork with a diameter of 1 inch is called No. 10. The difference in each size is $\frac{1}{16}$ of an inch. No. 9 measures $\frac{15}{16}$ inch diameter, No. 8 measures $\frac{14}{16} = \frac{7}{8}$, etc.

Fancy Corks.—There are corks which are branded on the side or have initials or monogram on top. Some are made with a polished wooden top, others with aluminum top. There are also corks covered with a rubber covering in place of the more expensive rubber stoppers. Corks having a camel's hair brush inserted, as for corn cure, might also be enumerated in this category.

Other Corks.—Besides the tapered prescription corks used by pharmacists, there are a great many other varieties, f. i., the straight corks from the finest quality champagne corks down to the common soda water cork; flat corks for wide mouth bottles or jars, the so-called specie cork; shell corks with a perforated center, generally used with a sprinkler top; disks—these are very largely used as a lining for metal bottle caps. The cork is sliced or split by very sharp circular saws and from these flat pieces about $\frac{1}{9}$ inch thick, the disks are stamped out.

Paraffined Corks are prepared by rotating the dry corks in large hot drums with just sufficient melted paraffin to be absorbed. Through the rotating these corks are polished at the same time. Paraffined corks could with advantage be used much more than they are at present; they are especially useful for acid and also alkaline liquids. It may perhaps be not generally known that the reason the corks of some of the proprietary preparations as milk of magnesia or milk of bismuth are not attacked is because they are paraffined. I have some corks here which have been in contact with magma magnesiae for over one year.

The discoloration of ordinary cork as well as the discoloration of the milk of magnesia can easily be explained, as the suberin in the cork is saponified by alkalies.

Other Articles from Cork.—Among the numerous other articles manufactured from cork, life preservers are perhaps the most important. According to the U. S. regulations they must not weigh over seven pounds.

Other articles are ring buoys, mooring and anchoring buoys, yacht fenders, seine corks for fishing nets, insoles and soles for shoes, floats for plasterers, wheels for polishing glass, balls to be used at seashore, artificial limbs and a great many smaller articles as bobbars for fishing lines, handles for fishing rods, bicycles and pyrographic instruments, tips for penholders, strips for eye glasses, etc., etc.

Use of Waste.—The waste in a cork factory is tremendous, amounting to about 60 per cent. All of this waste is saved even the dust at the various machines which by powerful air suction is carried away by pipes. The waste is ground or powdered and utilized to manufacture linoleum, together with linseed oil, floor tiling, cork cardboard, etc.

Together with melted pitch it is pressed into insulating cork, which is a non-conductor of heat and a non-absorbent of moisture. Thus far I have been unable to learn if ground cork is also used in the manufacture of breakfast food. I should, however, not be surprised to see it advertised for this purpose, f. i.

“Suberite gives an appetite,” or,
“Corkite breakfast food is a corker.”

Artificial Cork.—In going over the available literature on cork I also came across a patent for the manufacture of artificial cork from ground cork, glue, sodium carbonate and calcium chloride. How successful this combination works I am unable to state, but hardly think it can replace the natural corkwood.

Importation and Duty.—The importation of cork into the United States amounts to over five million dollars annually. There is no duty on the cork wood, but 30 per cent. ad valorem for manufactured material. The duty on cork stoppers up to three-fourths inch in diameter is 25 cents per pound and above that 15 cents per pound.

Inventions by Pharmacists.—I might also mention that the cork borer which has largely succeeded the rat tail file was invented by the German pharmacist Carl Friedrich Mohr (1806-1879), the father of volumetric analysis, who also originated the graduated burette and the pinch cock which bear his name. In 1860 the cork machine was first recommended by a German pharmacist in the Pharmaceutische Centralhalle. The pharmacist, C. L. Lochman, took out a United States

patent on August 27, 1867, on the well-known rotary cork press, which is used today.

Literature.—Among the literature which I have consulted I beg to point out the following:

Flückiger: *Pharmakognosie des Pflanzenreiches.*

Hager: *Pharmazeutische Praxis.*

Beckmann: *Geschichte der Entdeckungen und Erfindungen.*

Schelenz: *Geschichte der Pharmazie.*

Tschirch: *Handbuch der Pharmakognosie.*

Rousset: *Culture, Exploitation et Management du chêne-liège en France et en Algérie.*

As stated at the beginning of my paper, the literature on this subject in English is very scant indeed, especially in books which are available to the pharmacist. For this reason I trust that my somewhat lengthy treatise will give the pharmaceutical profession some idea as to the history, origin, cultivation and manufacture of cork.

BROOKLYN, NEW YORK, March 11, 1912.

ON BEING GOOD WITHOUT DOING GOOD.

"I do not know any occupation that is worth so little while to grown-up people as simply being good without doing some good. Of course, there are some people that are perfectly satisfied with the appearance of things. There are men that don't need any money and don't want it, and just get the community to believe they have it. So we find them in every community straining every effort and living as we call it beyond their means and keeping up appearances, trying to make themselves believe that they have what they know they have not. Why I know among my own friends—none of them are here, but there are some few in the community, who are riding in limousine cars that cannot afford the price of a wheelbarrow and all because gasoline to some nostrils smells like a bank account.

"I know a woman who goes home in a taxi and then borrows a quarter to start the gas meter. There are those, of course, that want the real coin and they strive to get it at any cost, and as Donald G. Mitchell says, they economize by denying themselves what they want while young, that they may have that that they don't want when they are old."—*Charles F. Moore*, Editor of "Paper."

BORROWING AND CREDIT.

"Credit is like some people you and I know; it is always hanging around where it is not wanted and it is never on hand when you want it. The man who is penniless and hungry has trouble to negotiate a loan sufficient to buy a sandwich. But if perchance he becomes possessor of a vast estate tomorrow, then every idle dollar in the community is thrust upon him to use on his own terms and return it when he gets ready. I know what I am talking about, because I have had occasion to investigate this subject."—*Charles F. Moore*, Editor of "Paper."

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE CULTIVATION OF MEDICINAL PLANTS AT THE COLLEGE OF PHARMACY OF THE UNIVERSITY OF MINNESOTA.

EDWIN L. NEWCOMB.

The Medicinal Plant Garden of the College of Pharmacy of the University of Minnesota was designed primarily to facilitate and make more comprehensive the instruction in Pharmaceutical Botany and Pharmacognosy. It furnishes one of the essential means of giving instruction pertaining to the vegetable drugs or their preparations. The proper development of such a garden gives the student an excellent idea of the origin of vegetable drugs and not infrequently is the cause of the production of botanical enthusiasts, which all pharmacists should in reality be. The teaching of pharmaceutical botany and pharmacognosy without a medicinal plant garden is not comparable in efficiency with that supported by an adequate drug garden. With such an accessory the students are soon impressed with the distinguishing characters of such families of plants as the *Compositae*, *Solonaceae*, *Umbelliferae*, etc., and they are quickly able to identify such plants as *Digitalis purpurea*, *Verbascum thapsus*, *Inula helenium*, *Hyoscyamus niger*, *Atropa Belladonna*, etc.

While it is true that the growing plant which ultimately yields the drug usually presents an entirely different appearance from the drug itself, this need not mitigate against or complicate the instruction. It rather facilitates it, for a thorough knowledge of the characters of the plant will insure a quick eye to identify the cured product or to detect inferiority in it, and familiarity with the plants soon removes most trouble with nomenclature.

With the decided advantages which such facilities afford in giving instruction in pharmacy courses, it seems strange that so few colleges in this country have up to this time established independent medicinal plant gardens. A number of institutions are so situated that they have access to botanic gardens where many medicinal plants may be found growing. This association, good as it may be, does not meet the urgent need of a medicinal plant garden in close proximity to and under the direct supervision of the college itself.

It is now nineteen years ago that Dean Wulling, realizing the need of such a garden, asked the Board of Regents of the University for a tract of ground and funds to establish medicinal plant cultivation. About fourteen years ago a plot of ground was granted, but no funds were available and hence nothing apparent was accomplished at this time at the college, but Dean Wulling started a garden on a small scale at his home, which, however, he soon after abandoned principally

because of lack of time and area. In the fall of 1910 an appropriation was secured for the establishing of a medicinal plant garden and late this spring the ground which had been granted some fourteen years ago was plowed for the College of Pharmacy and actual work begun.

The garden is admirably located and of about forty thousand square feet in area immediately adjoining the building occupied by the College of Pharmacy. It represents part of the University campus which some time ago was a shallow basin, but which has been filled in during the past few years. On this account the soil is quite varied consisting mostly of light sandy loam with a coating of peat. The plot is surrounded on all sides by buildings which afford considerable protection. After the ground had been plowed and thoroughly harrowed it was staked out into plots of convenient size and shape, for the most part 10 x 18 feet. A few beds of more ornamental design were prepared as the garden was to occupy a rather conspicuous location on the campus.

The question which has frequently been asked in connection with medicinal plant cultivation is, "Where can the seed or plants be obtained to make the start?" Many of our medicinal plants are used as ornamentals and hence American and European seed dealers are able to supply a certain amount of the desired seeds. In case the drug consists of the seed or fruit this, if not too old, may furnish a very valuable means of starting the work of propagation. Samples were taken from the drug collections at the College of Pharmacy of some fifty-eight different drugs and of these thirty germinated, giving in a short time a supply of plants yielding these drugs. This experiment disclosed a rather valuable test for the identification of certain seeds drugs. A sample of *Delphinium consolida* on two germination tests showed the presence of ten per cent. of the seed of an entirely different plant. So close was the similarity of the two seeds that the adulterant would go undetected unless a microscopic examination was resorted to. The reason for the germination of only fifty per cent. of the various seeds tested was probably due to either or both of two causes: first, the age of the seed; and second, injury to the vitality in preparation of the drug.

Among the seeds taken from the drug collection which grew and furnished strong plants may be mentioned those of *Atropa Belladonna*, *Delphinium consolida*, *Conium maculatum*, *Pimpinella Anisum*, *Coriandrum sativum* and others from the *Umbelliferae*, *Delphinium Staphisagria*, *Citrullus Colocynthis*, *Datura stramonium*, *Hyoscyamus niger* and *Lobelia inflata*.

Seeds of the above plants and some fifty others were purchased from New York seed dealers and started in the greenhouse about February 17th. Among the seed sown at this time were those of the following plants: *Inula helenium*, *Capsicum spec.*, *Arnica montana*, *Glycyrrhiza glabra*, *Cytisus scoparius*, *Carthamus tinctoria*, *Lavandula spec.*, *Passiflora incarnata*, *Matricaria chamomilla*, *Coix lachryma*, *Datura meteloides*, *Rheum palmatum*, *Ricinus spec.*, twelve varieties of *Digitalis* and many others.

Most of the seed germinated in from one to two weeks and the method of handling the seedlings being much the same in each case, a description is here given of *Digitalis*.

After carefully preparing the soil which was of a good rich light moist loam containing a large amount of well-rotted sod and leaf mould, it was placed in

four or five-inch flower pots supplied with a few pieces of broken pot for drainage. The soil should be lightly pressed down so that the surface is smooth and quite firm. The seed were then spread over this prepared surface and covered with the same soil, to which about forty per cent. of sand had been added. The seeded pots thus prepared were thoroughly watered with a rubber bulb sprinkler which does not wash the soil. Each pot was covered with a plate of window glass to retain the moisture. In the preparation of the soil it is important to select that which is as free from weed seeds as possible.

Digitalis lutea, *Digitalis lanata*, *Digitalis grandiflora* and *Digitalis ferruginea gigantea* required from thirteen to fifteen days to come up, while *Digitalis purpurea rosea*, *Digitalis purpurea maculata superba*, *Digitalis purpurea gloxiniaeflora alba*, *Digitalis purpurea monstrosa* and *Digitalis purpurea alba* all germinated in from nine to thirteen days. In from two to three weeks the plantlets were well started having one or two pairs of leaves. At this time they were transplanted into flats (shallow boxes about three inches deep and preferably eighteen by twenty-four inches in area). The same rich finely pulverized soil was used here as in the planting of the seed. The plants were put about two inches apart each kind in a separate flat and the soil firmly pressed about the roots. When the plants became crowded in the flats they were transplanted into two and one-half or three-inch pots.

The next step was that of hardening off the plants before final planting. This was done by placing them outside in cold frames for the early part of May, glass being kept over them all the time for the first few days and then gradually withdrawn. The plots in the garden were worked over with a spading fork and the plants put in rows eighteen inches apart each way. About twelve hundred plants of the different species of *Digitalis* have been handled in the above described manner, the outside planting taking place from May 20 to June 20. The plants in the first beds put out have made a remarkable growth and the ground is covered with the beautiful rich green foliage.

In addition to the large number of plants started from seed, some plants were purchased, representing trees, shrubbery and hardy perennials from which drugs are obtained. The seed of over four hundred medicinal plants were imported and a large number of these are under cultivation, others are being put in as rapidly as the ground can be prepared.

A hedge of *Rhamnus catharticus* has been planted on the west and south sides of the garden. Within this are border beds filled with more or less tall growing annuals or perennials as *Inula helenium*, *Ricinus species*, *Hibiscus militaris*, *Borago officinalis*, *Atropa Belladonna*, *Martynia proboscidea*, *Datura stramonium* and *Helianthus annuus*. At the north end the border widens out into a broad plot which is filled with *Papaver somniferum*, *Salvia officinalis*, *Nicotiana tabacum*, *Salpiglossis*, *Canna*, *Thymus vulgaris*, *Lavendula vera* and others. At intervals of twenty feet along the border such trees as *Ulmus fulva*, *Xanthoxylum americanum*, *Juglans nigra*, *Salix alba*, *Quercus alba*, etc., have been planted. These outside beds are bordered with *Digitalis spec.*, *Cineraria maritima*, *Dianthus spec.*, *Impatiens balsamina* and *Antirrhinum majus*.

A large plot has been laid out at the south end of the slathouse and here may be found growing an interesting group of evergreens and other plants closely

related botanically as *Larix Europaea* and *Salisburia adiantifolia*, the Japanese Ginkgo tree. Between the trees a collection of the plants which yield our common pot herbs have been temporarily located, including *Ocimum Basilicum*, *Hyssopus officinalis*, *Melissa officinalis*, *Majoranum hortense*, *Origanum vulgare*, *Tanacetum vulgare*, etc. Along the south side of the slathouse various varieties of *Vitis vinifera* have been put in to afford additional shade. Between these *Citrullus Colocynthis* was planted.

The slathouse, a structure one hundred feet long, twenty feet wide and seven and one-half feet high, extends along the east side. A collection of shade loving plants have already been obtained, including *Cimicifuga racemosa*, *Podophyllum peltatum*, *Hydrastis canadensis*, *Geranium maculatum*, *Sanguinaria canadensis*, *Spigelia marilandica*, *Aspidium species*, *Cypripedium spec.*, and many others. A long bed is laid out along the front of the house and here different species of the following genera have been planted: *Luffa*, *Momordica*, *Citrullus*, *Convolvulus*, *Bryonia*, *Cucurbita* and *Cucumis*. In addition to these climbers such perennials as *Clematis*, *Humulus*, *Ampelopsis*, *Solanum*, *Wistaria*, *Aristolochia* and *Pueraria* species are to be found. The entire length of the bed is bordered with *Digitalis* species and there is also a fine display of *Cannabis gigantea*, *Cannabis Americana*, *Foeniculum vulgare* and *Zea Mays* varieties.

The largest portion of the garden is laid out into the rectangular plots previously referred to. Of these the following are deserving of special mention:

Plot No. 4 is planted to *Conium maculatum*. This plant has done remarkably well. Several of the specimens now in blossom have attained a height of over four feet.

Plot No. 6 contains *Ricinus communis* var. *minor* and var. *major* as well as a number of other species. The seed sold as drug appears too often to be a mixture of seed from the different species of *Ricinus*.

Plots Nos. 8, 12, 13, 16, 28, 48, 49, 61 and 62 are filled with different varieties and species of *Digitalis* and it is hoped that some work can soon be done concerning the factors which influence the potency of the official drug.

Plot No. 14 contains *Aconitum napellus*, *A. Lycotonum* and *A. Fischerii*, also *Delphinium staphisagria* and other species of *Delphinium*.

In plot No. 17 may be found *Capsicum frutescens* and other species of capsicum.

Plot No. 20.—*Sinapsis nigra* and *Sinapsis alba*.

Plot No. 24.—*Coriandrum sativum*, the drug purchased in the open market was used to plant this bed. The plants have made a fine growth and give promise of fruiting long before frost.

Calendula officinalis fills No. 25, a plant exceedingly easy of cultivation and producing a profuse number of flowers.

Plot No. 26 contains *Matricaria chamomilla*. This bed is now a mass of the beautiful little white daisies and, like calendula, is very easy to grow.

In plot No. 27 are twelve plants of *Datura meteloides*, which cover the entire 160 square feet devoted to them and present a magnificent sight in the evening when their large pure white odorous flowers expand.

Nicotiana repanda yielding Havana tobacco and *N. tabacum*, yielding the so-called Pennsylvania and other commercial varieties of tobacco, are growing luxuriantly in plot No. 30.

A fine group of *Atropa Belladonna* seedlings are found in plot No. 31, as well as a few flowering plants.

Plot No. 36 contains such xerophytic plants as *Aloe spec.*, *Agave Americana*, *Cactus grandiflora* and *Euphorbia pilulifera*, the border consisting of *Echeveria spec.*

Plots Nos. 39 and 56 are filled with such cereal yielding plants as *Avena Sativa*, *Hordeum sativum*, *Triticum sativum* and *Secale cereale*.

Three varieties of *Hyoscyamus* are being studied, namely, *H. niger*, *H. albus* and *H. pictus*.

Several plots throughout the garden were assigned to drug yielding shrubs. Some fifty of these have been planted, including *Viburnum opulus* and other species, *Chionanthus Virginica*, *Hydrangea arborescens*, *Berberis vulgaris*, *Cornus stolonifera*, *Sambucus canadensis*, *S. nigra*, *S. pubens*, *Prunus serotina*, *Prunus Virginiana* and *Euonymus atropurpureus*. Between the shrubs hardy perennials have been planted, such as *Monarda* species, *Helenium autumnale*, *Iris spec.*, yielding *Orris*, *Phlox spec.*, *Paconia officinalis*, *Yucca filamentosa*, etc.

On five of the plots cold frames covered with sash were constructed. Many plants were started in these and they will be used again this fall for giving slight protection to certain plants during the winter.

Over one-half of the medicinal plants yielding official drugs are already under cultivation and more are being continually added. Of those which do not yield official drugs the number is much larger and it is planned to add representative specimens as rapidly as possible of all drug yielding plants, some of which necessarily must be conserved in the greenhouse.

The general plan in developing the garden has been to keep different species of plants belonging to the same family in beds of close proximity. This was followed out to a certain extent, but until soil conditions can be produced as desired in each plot the plan will not be entirely feasible. Such an association of plants greatly enhances the value of the garden in giving instruction in pharmaceutical botany.

The effect of different soils, moistures, etc., on the constituents of certain plants is being carefully observed and it is hoped that some valuable pharmacophysiology work can soon be accomplished.

PERMANENCE OF SOME ASTRINGENT PREPARATIONS.

WILBUR L. SCOVILLE.

In March, 1908, a series of fluidextracts of drugs which contain considerable amounts of tannin was prepared for the purpose of studying the stability of the tannin in such preparations. Each was freshly made and was tested as soon as possible after finishing.

The Loewenthal method of estimating tannin was first tried. With some the results were satisfactory, so far as the operation of this process is concerned, but with others it was impossible to get any end-point and this method was abandoned. From this and subsequent experiences the writer believes that no one method

can be applied satisfactorily to all kinds of tannin containing material, because tannin, as the term is used, stands not for a definite substance but for a class of substances, ranging from chlorogenic acid to true tannic acid. For specific kinds of tannins, as for the treatment of leather, tests which are adapted to that purpose can be made very satisfactorily, but it will be readily understood that for other kinds of tannoid bodies, such a test may entirely fail.

After some study and experimentation it was decided to use two methods, found in Allen's Organic Analysis, 3rd edition, Vol. III, Part I.

The first method, devised by F. Jean, consists in matching the color produced with a weak solution of ferric chloride and a tannic acid solution of known strength, with a dilution of the fluidextract under examination. As in all colorimetric processes this will vary not only with the personal equation, but in different lights, and with colored solutions.

The fluidextracts were each diluted 1 Cc. to 99 Cc. of water for this test. When fresh, each produced a marked cloudiness with water, but after aging some mixed clear with water and all were more miscible than at first. It was not thought best to clarify these solutions any further than by simple filtration through paper, so in the earlier tests a greater degree of cloudiness was contended with than in the later tests. This will account in part at least for the higher results often obtained by this method on the preparations after they had stood for a time.

It is scarcely necessary to point out that this method will estimate not only tannins, but also gallic acid (if present) and any principle that will give a dark color with ferric chloride.

It has, however, the advantage of rapidity, and for tests in series on the same liquid it may be expected to show whether any marked changes have taken place in these principles on standing.

The second method, devised by Collin and Benoist, aims to measure the amount of weak tannin solution required to precipitate all of the gelatin from a definite gelatin solution. The end-point on this method is found in the disappearance of a blue color which is added to the gelatin solution, and is aided by the appearance of the precipitate.

In this process much depends upon close attention to certain details—more, in fact, than was realized in the earlier tests. The gelatin solution must be very hot (80°C), the tannin added very slowly and mixed quickly, and the reaction of both solutions must be alkaline, but faintly so. Since alkalies split up tannins, this last is a fatal point for very accurate work, particularly with colored solutions.

The process, however, distinguishes between tannic and gallic acids, and excludes also other principles which give a dark color with ferric chloride. It thus serves as a check upon the first process.

It may be charged that two inaccurate processes cannot make an accurate one. This is certainly true, and the most that can be claimed for the results given below, is that they may show whether marked changes have occurred in the preparations during the three years that they have been kept, with a fair degree of certainty.

The writer wishes to state that his respect for tannin estimations has not been increased any by this work, and that while, in the light of an accumulated experience more uniform results might be obtained by a repetition of the work, yet a liberal allowance would need to be made for results, by these methods.

The results in the following table are expressed in percentage as a matter of clearness and convenience, but it is highly improbable that the percentages represent actual proportions of tannin. In each series, blanks were used with a solution of pure tannic acid of known strength, and the calculations based upon the figures obtained at the time, but the results with pure tannic acid varied. Differences in the light will account for variations in the first process, and differences in the gelatin solution and in alkalinity will account for the variations in the second process.

	March, '08		June, '08		Dec., '08		June, '09		Dec., '09		Dec., '10		April, '11	
	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B
Bayberry	8.6	19.0	8.6	12.5			8.0	11.0	9.0	18.0	9.0	17.0	7.5	13.0
Blackberry ..	8.0	11.8	8.0	5.5	8.7	5.0	8.0	5.3	7.5	6.0	8.2		7.5	2.8
Chestnut														
Leaves	7.05	7.7	7.05	5.5	7.7	5.5	5.7	5.4	6.2	5.1	6.4	5.0	6.0	2.2
Geranium ...	4.3	10.5	6.0	6.8	6.0	5.5	6.0	6.0	5.7	6.0	2.4	2.5	*	
Gambir, Tr... 0.92	1.3	1.0	0.6	1.0			1.0	0.64	0.91	1.2	0.85	0.75	0.96	0.90
Jambul	8.0	11.1	8.0	6.3	7.8	5.2	5.7	5.0	7.4		6.4	6.0	6.5	3.8
Kino, Tr.....	1.1	2.4	1.3	2.5	1.3	2.0	1.2	1.8	1.3	2.0	1.3	2.0	1.3	2.2
Logwood	6.6	6.3	6.6	5.0	6.6		5.7	3.2	5.5		6.3	3.0	5.0	2.2
Nutgalls,														
U. S. P.....	17.1	10	17.1	10	16.6	8.7	16.0	8.3	13.0		15.0		13.3	7.4
Nutgalls,														
aqueous ...	17.1		10.0		9.0	00								
Rhatany	6.0	15	6.0	6.8			5.3	5.6	4.2	5.5	4.1	5.5	2.0	1.8
Rose	12.0	19	12.0	6.5	10.5		10.6		12.0	11.2	12.3	12.0	12.0	5.0
Sumac	6.0	7.5	6.0	3.4	5.5	3.3	5.0	2.6	4.5		3.0		3.2	
Uva Ursi	7.0	9.0	7.0	5.0	7.1	3.3	8.0	2.8	8.0			00		00
White Oak...	5.0	10.5	5.0	6.4	5.0	4.7	5.0	6.0	5.0		3.7	5.0	4.0	2.8
Wh. Pond Lily	12.0	13.3	12.0		12.5	9.0	13.3	8.0	13.0		10.0	7.5	11.0	6.0
Wild Cherry..	2.7	7.9	2.0	2.2										
Witch Hazel..	6.0	9.5	6.0	3.9	5.9	2.2	5.0	3.8	4.6	1.2	4.5		4.6	

*Gelatinized.

It will be noticed that the results by the gelatin process on the first assay are usually much higher than on subsequent tests—usually about twice as high as the second test. Since the gelatin solution was prepared fresh each time, I cannot account for this except on the supposition that some change takes place in tannin solutions very quickly. And since the U. S. P. Nutgall fluidextract is the only one that is made without water in the menstruum, and the aqueous fluidextract of Nutgall corresponds in this respect to the other preparations, it would seem that a hydrolysis takes place. This is further borne out by the fact that the preparations which are weakest in alcohol (Chestnut, Uva Ursi, Wild Cherry and Witch Hazel) show the most rapid change.

Indeed, the most profitable suggestion from this study is that tannin preparations should be strongly alcoholic in order to be permanent, and conversely preparations which are undesirably astringent may be rapidly freed from tannin by using a weakly alcoholic menstruum. Thus a fresh fluidextract of Wild Cherry is strongly astringent, but after standing a few weeks it will lose most of this astringency and become more miscible with aqueous fluids.

Glycerin does not appear to hinder or prevent this change as does alcohol, the aqueous fluidextract of Nutgall being made with a menstruum of 60 per cent. glycerin by volume.

The physical conditions of the fluidextracts at the end of three years are interesting.

The fluidextracts of Bayberry, Logwood, Nutgall (U. S. P.) Sumach, Rhatany, White Oak and White Pond Lilly and Tinctures of Gambir and Kino are nearly clear or contain only a very slight precipitate. Fluidextracts of Bayberry and Rhatany show no precipitate but they seem to have thickened a little and suggest the gelatinizing process.

Fluidextracts of Blackberry, Chestnut, Jambul, Aqueous Nutgall, Rose, Uva Ursi, Wild Cherry and Witch Hazel have precipitated badly, and in most cases the precipitate has caked together. Fluidextract of Geranium gelatinized after about two years.

Of the nineteen preparations, Tinctures of Gambir and Kino, and Fluidextract of Nutgall are the only ones in which no material change is evident in three years.

Fluidextracts of Bayberry, Blackberry, Chestnut, Jambul, Logwood, Rhatany, Rose, White Oak and White Pond Lily kept well for two years, but signs of deterioration now appear in these, though positive conclusions should not be drawn from the last tests. No positive conclusions are drawn for these preparations.

Fluidextracts of Geranium, Aqueous Nutgall, Sumac, Uva Ursi, Wild Cherry and Witch Hazel show an unmistakable loss of astringency, and mostly within a year. Geranium kept about two years then gelatinized—and it will be noticed that the tests within three months of gelatinizing showed a marked and sudden reduction in tannin. Aqueous Nutgall shows evidence of the tannin rapidly changing to gallic acid.

Wild Cherry loses its astringency quite rapidly; Sumac, Uva Ursi and Witch Hazel more slowly.

Gelatinization does not take place until the tannin is all changed, and a preparation which will gelatinize finally may have lost most of its astringency without changing its physical appearance. Precipitation may occur to a considerable extent without loss of astringency. But the use of strongly alcoholic menstruum for astringent preparations is strongly suggested.

Two fluidextracts of Cinnamon were included (Cassia and Ceylon Cinnamon) in the investigation, but the estimation of tannin in the fresh preparations was so unsatisfactory that definite records could not be obtained. Evidently the tannoid bodies in Cinnamon are not true tannic acid.

LABORATORY OF PARKE, DAVIS & CO., DETROIT, MICH.

ANETHOL VS. OIL OF ANISE.

OTTO RAUBENHEIMER.

The question whether Liquor Ammonii Anisatus, a much used galenical which is to be admitted into National Formulary IV, should be prepared with anethol or with oil of anise, a question which has caused quite some arguments in our National Formulary Committee, prompts me to bring the same up before the Scientific Section for discussion.

Liquor Ammonii Anisatus, official in most of the foreign pharmacopoeias, is a solution of 1 Gm. anethol or oil of anise in 24 Gm. alcohol with addition of

5 Gm. ammonia water. The latter is of 10 per cent. strength and is not the stronger kind, as has been misinterpreted from the foreign official title liquor ammonii causticus, and to which error the author has called attention on numerous occasions.

OIL OF ANISE.

It is the volatile oil distilled from anise, the fruit of *Pimpinella Anisum*, L. It is thus defined in the seventh decennial revision (1890) of the United States Pharmacopoeia and in the foreign pharmacopoeias. Unfortunately, this definition was changed in United States Pharmacopoeia VIII to also include the oil of star anise, the fruit of *Illicium verum*, Hook-fil. The British Pharmacopoeia is the only other standard which gives the same definition and includes both oils under the same official title *Oleum Anisi*.

The Codex Medicamentarius Gallicus or Pharmacopée Française, 1908, contains two separate monographs under the French titles "Essence d' Anis" and "Essence de Badiane" and the Latin titles "*Oleum Anisi Aethereum*" and "*Oleum Anisi Stellati Aethereum*", respectively.

DIFFERENCE BETWEEN OIL OF ANISE AND OIL OF STAR ANISE.

There is a marked difference between these two oils, and I greatly doubt the advisability of including both under the official title "*Oleum Anisi*".

1. *Difference in Name.*—The oil of anise from *Pimpinella Anisum* is known as Russian oil, because that country is the market for anise seed for the distillation of the oil. The oil of star anise from *Illicium verum* is generally known as Chinese oil of anise, being imported from southern China and Tonkin.

2. *Difference in Chemical Constituents.*—The two anise oils should contain from 80 to 90 per cent. anethol, to which the characteristic anise-like odor and sweet taste are due. Methyl chavicol, a liquid isomer of anethol, having its odor but not its sweet taste, is another constituent. The two together, with traces of oxidation products as anisic aldehyde and anisic acid, are the constituents of the oil from *Pimpinella Anisum*.

Star anise oil also contains the terpenes d-pinene and l-phellandrene and traces of the ethyl ether of hydroquinone. According to Oswald,¹ it also contains safrol, while Tardy² states that it contains terpineol, a laevorotatory sesquiterpene, and a body melting at 213° C.

In order to corroborate these statements, and in view of the knowledge which has been gained in the chemistry of terpenes in recent years, Schimmel & Co. have made a thorough investigation,³ and report that star anise oil, in addition to its previously known constituents, also contains: p-cymene, cineol, safrol and terpineol. The phellandrene present was found to be a mixture of l-, a-, and b-phellandrene.

3. *Difference in Physical Characteristics.*—Oil of star anise generally has a

¹Archiv. der Pharmazie, Vol. 229 (1891), 95.

²These pour l'obtention du diplôme de Docteur de l'Université de Paris (1902), abstr. Schimmel's Report, October, 1902, 79.

³Schimmel's Report, April, 1910, 99-101.

lower solidification point than the Russian oil, a fact which was also recognized in the resolutions of the second international Congress of the White Cross Association for suppressing the adulteration of food stuffs, chemical products and drugs, held in Paris, October, 1909.

Oil of star anise is sometimes slightly dextrorotatory,⁴ while the Russian oil always has a rotation to the left. But the principal difference lies in the odor and taste, as the oil of star anise never has the sweet anise odor and taste of the Russian oil, and for that reason it is distinctly inferior. The French Codex in the description of Essence d'anis states "saveur sucré," which property, however, is not mentioned under Essence de Badiane.

4. *Difference in Price.*—The Russian oil is always more expensive. I find it quoted at \$2 per pound, while the Chinese oil is quoted at only \$1.40.

Besides these differences, there are two more facts to be taken into consideration:

a. *Adulteration and Sophistication of Oil of Star Anise.*—This oil, being imported from China or Tonkin, is very prone to be adulterated. Lately the English chemists and authorities on essential oils—Parry,⁵ Ummey⁶ and Jensen⁷—reported that Chinese oils of low specific gravity and low congealing point were adulterated with some fraction of camphor oil. Evans Sons, Lescher and Webb, Lim.,⁸ have reported the same. Schimmel & Co.⁹ find that a low specific gravity and low solidification are due to the abstraction of anethol.

Japanese oil of star anise, which is distilled from the leaves, contains only 25 per cent. anethol, besides terpenes, eugenol and safrol.

b. *Substitution of Oil of Star Anise for Oil of Anise.*—This is undoubtedly very common. The similarity in name, the difference in price, and last, but not least, the unfortunate fact that both are official in United States Pharmacopoeia VIII under the same title, are responsible for this substitution.

The National Standard Dispensatory, 1905, states on page 1058: "The substitution of star anise oil for anise oil is not regarded as adulteration. Fair dealing, however, demands that both oils be sold under their proper label." Our National Formulary, and even its forerunner, the New York and Brooklyn Formulary, makes the following statement under Elixir of Anise, which statement still holds good today: "Oil of star anise, which is usually supplied by dealers when oil of anise without specification is ordered, does not answer well for the preparation of aniseed cordial."

From these remarks it can be readily understood that we are greatly in need of a uniform body in place of the variable oil of anise in the market. And we have the same in anethol, the stearopten or oxygenated constituent of oil of

⁴Schimmel's Report, April, 1908, 139.

⁵Chemist and Druggist 77 (1910), 687.

⁶Perfumery and Essential Oil Record 1 (1910), 236.

⁷Pharmaceutical Journal 85 (1910), 759.

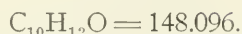
⁸Analytical Notes, 1910, 9.

⁹Report, April, 1911, 108-110.

anise. Our committee on stands of unofficial drugs and chemical products under the chairmanship of George M. Beringer, has prepared the following description, standards and tests:

ANETHOLUM.

Anethol.



The methyl ether of para-propenyl-phenol, C_3H_5 (1) $\text{C}_6\text{H}_4\text{OCH}_3$ (4), constituting the main constituents in oil of anise, star anise and fennel and obtained by fractioning, chilling and crystallizing. It should be kept in well stoppered, amber-colored bottles, protected from light and air.

At ordinary temperature anethol is a colorless or faintly yellow, highly refractive liquid, having a sweet taste and the aromatic odor of anise. At $+21$ to $+22^\circ\text{C}$. it solidifies to a white glistening, crystalline mass, which remelts at 22° to 23°C . Specific gravity 0.984 to 0.986 at 25°C . Boiling point 232° to 234°C . Its refraction index is 1.56 at 20°C . It should be optically inactive, or show a deviation of not over 0.08° in 100 mm. tube at 25°C ., due to slight traces of the oil from which the anethol has been prepared (if from anise oil this deviation will be levogyrate, if from fennel oil dextrogyrate).

Anethol is almost insoluble in water, readibly soluble in ether or chloroform, and makes a clear solution with two volumes of alcohol or two to three volumes of 90 per cent. alcohol at 20°C . 10 Cc. of anethol shaken with 50 Cc. of saturated solution of sodium bisulphite in a graduated cylinder and allowed to stand for six hours should show no appreciable diminution in its volume nor should a crystalline deposit separate (absence of aldehydes).

What an important role anethol plays in other countries is well illustrated by the fact that it has been admitted into the following pharmacopoeias:

Deutsches Arzneibuch, IV ed., 1900;
Pharmacop. Nederlandica, IV ed., 1905;
Pharmacop. Japonica, III ed., 1905;
Pharmacop. Austriaca, VIII ed., 1906;
Pharmacop. Belgica, III ed., 1906;
Pharmacop. Suecica, IX ed., 1908; and also in the
British Pharmaceutical Codex, 1907.

The Swedish Pharmacopoeia even goes so far as making the official statement that anethol is to be dispensed in lieu of anise oil and fennel oil.

It is consequently not surprising to notice the following remarks in Schimmel's Report of April, 1907, p. 12:

"The use of oil of anise is distinctly falling off, since in anethol there is placed a product at the disposal of the consumers, the use of which in view of the *purcr taste* and *greater richness* offers advantages which no one can gainsay."

While anethol seems to be quite well known, and also used in the eastern and middle sections of the United States, the discussions in our National Formulary Committee have brought out the statement that this is not the case in the western part. This is rather surprising, inasmuch, as anethol has been one of the ingredients in elixir anisi ever since the first issue of the National Formulary in

1888. The following note, which is contained in the three editions of the National Formulary, calls special attention to it:

"Anethol is the stearopten of oil of anise, and possesses a finer and purer aroma and taste than any commercial variety of oil of anise."

As has been stated, the German Pharmacopoeia IV made anethol official in 1900 and, strange to say, under the Latin title "*Oleum Anisi*" and the German title "*Anethol*". The late Belgian Pharmacopoeia gives the synonym "*Essentia Anisi*" under the official title "*Anetholum*". It goes without saying that this vice versa statement in the two standards is not correct, because anise oil and anethol are not identical, although the Russian oil now is of much better quality and has a larger anethol content than in former years. Strange to say, the fifth edition of the *Arzneibuch* has deleted anethol and also carvone and eugenol, and has admitted the corresponding oils in place thereof. This step, namely, the resurrection of the variable essential oils in place of their uniform active constituents, is much to be regretted, and is contrary to the policy adopted by the other Pharmacopoeias, namely to admit only the *very best*.

ADVANTAGES OF ANETHIOL OVER OIL OF ANISE.

1. It is of distinct chemical composition and can be obtained practically 100 per cent. pure, while the different anise oils vary greatly in their anethol content.
2. It is always of uniform character and is the same in every case, while anise oils differ greatly, physically and chemically, according to their origin.
3. Anethol can be tested more readily and more stringently as to its quality, purity and strength.
4. It is of greater solubility, being soluble in two volumes of alcohol, while some oils of anise require five to six volumes.
5. Anethol possesses a sweeter taste and a more aromatic odor than even the very best oil of anise.
6. Anethol is also to be preferred from a therapeutic point, as it constitutes that portion of oil of anise which is the most valuable medicinally.
7. Last, but not least, its price is reasonable in proportion to its strength, and some manufacturers claim it is twice as strong as the oil. The same price list quotes the Chinese oil at \$1.40, the Russian at \$2, and anethol at \$2.40.

As this question of anethol vs. oil of anise has arisen in connection with its use in liquor ammonii anisatus, I might also state the formula of the latter which has been proposed for the National Formulary IV under the title of

SPIRITUS AMMONII ANISATUS.

Anisated Spirit of Ammonia.

Anethol	30 Cc.
Alcohol	820 Cc.
Ammonia Water	150 Cc.
<hr/>	
To make	1000 Cc.

The advantages of Anethol in Spiritus Ammonii Anisatus, according to my experience, and I have prepared this galenical in large quantities for a great many years, are as follows:

1. Anethol produces a clear solution, while some of the anise oils give a turbid or cloudy spirit, which forms a precipitate.

2. Anethol produces a colorless preparation, while most of the anise oils turn the spirit yellow.

I hope that this question will be well discussed by the members of the Scientific Section, and I trust that my arguments presented will be so convincing that the uniform anethol will supersede the variable oils of anise in National Formulary, and perhaps also in United States Pharmacopoeial preparations.

AN EXAMINATION OF SOME COMMERCIAL SAMPLES OF ANETHOL.

GEORGE M. BERINGER.

In connection with the work of the Committee on Unofficial Standards, it was decided to prepare a standard for Anethol, and an examination of at least several commercial samples thus became necessary.

The authorities are fairly closely agreed upon the description and tests for this article. The Ph. Germanica IV, in which it was official as Oleum Anisi, gave its melting point at $+20$ to $+21^{\circ}$; the specific gravity at 25° C. 0.984 to 0.986; the boiling point 232° to 234° C., and soluble in two parts of alcohol. The Austrian Pharmacopoeia similarly states the melting point $+20$ to $+21^{\circ}$ C.; specific gravity 0.984 to 0.986; boiling point 232° to 234° . Parry, Chemistry of Essential Oils, gives melting point 21° ; boiling point 232° . Gildemeister and Hoffman, The Volatile Oils, melting point 21° ; boiling point 233° to 233.5° ; specific gravity at 25° C. 0.986. Allen, Commercial Organic Analysis, states "freshly prepared pure anethol congeals at about 21° C. and re-melts at 22.5 to 22.7° C. It is optically inactive. It undergoes oxidation on keeping." Schmidt, Pharmaceutische Chemie, states "melting point $+21$ to $+22^{\circ}$ C.; boiling point 233° ; specific gravity at 25° as 0.985." This author also "directs attention to the fact that from long keeping in the liquid state or exposure to air, Anethol changes, and then its congealing point may be reduced to even below 0° ."

While the Anethol of the European pharmacopoeias is presumably that obtained from Oil of Anise, it is the main constituent in oils of anise, star anise and fennel and may commercially be prepared from either of these. The oil of star anise probably furnishes the bulk of that in the American market. The physical characters must vary slightly with the source from which the anethol is obtained, due to slight adhering traces of the other constituents of the oil used. Within narrow limitations these affect the congealing, melting and boiling points and the specific gravity. While chemically pure Anethol is optically inactive, the commercial might show a slight dextro rotation if prepared from oil of fennel or a

slight laevo rotation if prepared from anise or star anise oils. In the establishing of a standard for the commercial article of satisfactory quality, such deviation from strict lines of absolute purity must be noted and limitation therefore fixed.

Five different samples were examined, three of these being recently procured from the agents of different manufacturers. The fourth was a sample purchased about two years before and subject to such exposure to light and air as would occur in store use. The fifth was an old sample which was at least fifteen years old but which had been kept for years in a dark closet. The results tabulated are here given:

Sp. Gr.	Op. Rotation	Congeeing Point	Melting Point	Solubility in 2 Vols. of Alcohol	With Solution Na H SO ₃
1—0.985	—07	21° C.	23° C.	Clear solution	No reaction
2—0.986	+035	20° C.	22° C.	Clear solution	No reaction
3—0.9846	Inactive	20° C.	22° C.	Clear solution	No reaction
4—1.0216	—052	No sign of congealing at +5° C.		Clear solution	Copious crystalline separation
5—1.0045	Inactive	14° C.	15° C.	Clear solution	Slight crystalline separation

Samples No. 4 and No. 5 show the changes due to keeping as stated by Schmidt. This is an oxidation and the reaction with sodium acid sulphite solution indicates that anisic aldehyde is at least one of the resultant products of such oxidation.

COÖPERATION WITH RETAIL DEALERS.

"During the past year there has been a wonderful awakening among manufacturers in their attitude towards the retail dealer. Some of them are beginning to realize that the retailers are a real factor in the distribution of their goods; others still have this lesson to learn. For the past twenty-five years we have been telling some manufactures in the drug trade, that they were making a great mistake in not giving more attention to the retail druggists; that it was one thing to send a customer to his store, and quite another thing to have the dealer a willing advocate of his goods. Times are changing, and many more manufacturers now recognize that it is decidedly to their advantage to give the retailers their hearty coöperation.

"Such work is decidedly in line with modern business methods. Strictly speaking, the retailer is the manufacturer's agent, and it is to the advantage of these manufacturers to keep these agents posted, and to extend to them every possible assistance, so as to help the retailer increase his profits and his sales, all of which reacts to the benefit of the manufacturer."—*Pharmaceutical Era*.

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

THE TEACHING OF AND EXAMINATIONS IN PHARMACOGNOSY.*

HENRY KRAEMER.

While it is true in teaching that success depends in large part upon the earnestness and personality of the teacher as well as his knowledge of the subject much also depends upon the methods that are followed. It was the Aggassiz method that developed a school of clear-headed and distinguished American zoologists. Aggassiz's words, "Study nature, not books," ring true and are well worthy to be framed and hung up prominently in all laboratories. Some teachers feel that they would like to impress upon the students the facts which they have acquired or the point of view which they have attained. Others use some particular textbook and it is upon the facts that are to be gleaned from this that the student's efficiency is finally determined. A happier method is the one in which after certain fundamental principles have been mastered, the teacher draws out from the student what he observes from the specimen in hand. Of course, to the ordinary student this may be irksome as it is often difficult for him to discern the progress that has been made. It is also harder for the teacher, as in nearly every class there will be found some who are keen observers and likely to ask questions which require the teacher to admit that he does not know it all. It has usually seemed necessary in order to maintain discipline for the teacher to stick near his desk and the student to follow the exercises laid down. Happily for all concerned we are approaching a condition when it is possible for student and teacher to work together, each receiving an inspiration from the other and each contributing to the *summum bonum* of knowledge. I have in a previous paper indicated what I consider to be the principal object in the study of Pharmacognosy as it relates to the training of the pharmacist. I said then that in view of the problems that confront us and that are constantly arising, the aim first should be the attainment of a knowledge of the characters of drugs rather than a general knowledge of them. The object of a course in Pharmacognosy is, I take it, not that a student shall examine so many drugs, but that he will be able to use his eyes so that he can determine whether a drug corresponds to a description as that of the Pharmacopœia, whether the specimen is all of one kind, the quality of it, and similar practical questions when he is in business. We all know that a student usually examines but a small sample of the drug. His specimen may differ from that of his comrades in certain particulars, as in the case of *Rhamnus Purshiana*, and

* Continuation of a previous paper presented to this Association (see Proceedings, Vol. 56, 1908, p. 672).

this is confusing. But let him examine, say five or ten pounds of this drug, and the characteristics will be so impressed upon him that he will be able to recognize even fragments of the drug.

While at college a student cannot possibly study thoroughly all of the drugs of the Pharmacopœia and National Formulary. I am beginning to be more impressed with the foreign method of teaching, in which the study is limited to a number of important drugs, or to such drugs as those the study of which has a didactic value, and in the case of which the work is required to be well done. Let the student spend three or four hours upon each of the twenty-two important official drugs † and he will not only know these well, but he will find it comparatively easy to acquire a knowledge of other drugs under circumstances that will not make him confuse so many of them. I have in preceeding years, because of the lack of time at my disposal considered from six to ten drugs in the course of a two-hour period. The result was one of confusion to the student which was manifest in subsequent examinations. I find that students are better able to recognize crude drugs after they have handled a single lot during several hours, including the making of sections and the examination of them with the microscope.

During the session that a particular drug is being studied by the students it is a good thing to break up the monotony of the work by talking about the plant yielding the drug and if possible try having some growing specimens in a prominent place and in addition a herbarium specimen of the plant for each student. At the same time one can give some facts regarding the distribution of the plant, the history of the drug and its important constituents. In this way a student is enabled to concentrate himself upon a single drug, and thus the facts impress themselves and he acquires a knowledge of drugs in a more natural way.

Permanent mounts of drugs should be at his command for purposes of microscopic comparison. Sections, however, should be made by the student and these should not only be cross-sections but tangential—longitudinal and radial-longitudinal as well. He should keep a record of his observations and make a series of drawings illustrating what he has seen, using both the simple microscope and the compound microscope. Sufficient assistance should be provided so that a student's question may be answered and his specimens or slides examined, as he should not leave the laboratory without all doubtful points being made clear.

The powdered drug should be examined after the studies on the crude drug have been completed. It is surprising to see how the student views the whole subject after he has spent an afternoon first examining the crude drug with the naked eye and of the simple microscope, then making sections and carrying on his studies with the compound microscope, and finally working with the powdered drug. He finds that the study of powdered drugs is not so difficult and furthermore, as in the study of *Belladonnæ Folia*, an adulterant of *Poke Leaves* is more readily determined in a powdered drug than in the crude drug. He finds as a matter of fact that one of the simplest methods in the examination of a num-

† The following are the drugs that I include in the list of the 22 most important drugs of the Pharmacopœia: *Acacia*, *Aconitum*, *Belladonnæ Folia*, *Cantharis*, *Capsicum*, *Cinchona*, *Cinchona Rubra*, *Digitalis*, *Ergota*, *Gentiana*, *Ipecacuanha*, *Jalapa*, *Lycopodium*, *Nux Vomica*, *Opium*, *Podophyllum Quassia*, *Rhamnus Purshiana*, *Rheum*, *Senna*, *Sinapis Nigra*, *Strophanthus*, *Zingiber*. Of course, there are a few other drugs that might be considered equally as important as some of these by some teachers.

ber of drugs, that may seem to be of good quality is to take five or ten grams of the material selected from various portions of the lot, powder it in a small mill and examine the powder under the compound microscope. I have seen students again and again find *Poke Leaves* in a sample of *Belladonna Leaves* that otherwise would have been pronounced of good quality. While we require students to make a permanent collection of the specimens of crude drugs which are furnished them for study, I feel that the time is at hand when we should require them to make a permanent collection of microscopic slides, illustrating these twenty-two important official drugs. As the compound microscope can be had at such a reasonable figure at the present time I think that every thing should be done to encourage students to invest in this piece of apparatus which is indispensable not only in detecting adulteration, but also in determining and establishing confidence in reliable jobbing houses.

EXAMINATIONS.

After the student has taken up the practical studies of vegetable drugs and has concentrated his attention on the most important of those that are official, the question is what tests shall be applied to determine his qualifications to be a safe pharmacist. Of course, the professor has the advantage of seeing the student day after day, and if he has been faithful in attendance and has conscientiously carried on the work the teacher must know his general ability after the entire course of instruction. Usually, however, an examination is given for the purpose of testing a candidate's knowledge of the subject. But what is the test of knowledge? What is the nature of the questions that are to be asked to test the candidate's knowledge in this particular branch? We have all been familiar during our college days with men who failed in examinations and who really knew more about the subject than some of those who passed the examinations. The secret of the latter in passing an examination very often consists really in concealing from the examiner what they do not know. If this is done discreetly and the student can impress upon the examiner what he does know he will probably pass the examination. There are some examinations where this cannot be done and this is particularly true of examinations in *Materia Medica* as conducted in most Colleges of Pharmacy and of Boards of Pharmacy.

In these examinations the memory test is largely relied upon. So much hinges upon giving the "Natural Orders," "Habitats," etc. The student preparing for these examinations usually uses some book in which in a series of parallel columns are given one or two words covering the information that is expected of him in the examination. Partly because the subject of the examination is so lifeless, the student has never been stimulated in his studies. Furthermore because the examination is so perfunctory the student's thoughts are seldom carried beyond these parallel columns, and he can truthfully say that the whole subject is dry and uninteresting. Besides on this account the general inference is that the subject is of little or minor importance.

Occasionally we find teachers who dilate upon the subject of the history of drugs and the countries in which the plants are indigenous but say practically nothing more of the drug than is contained in the *Pharmacopœia*. We find students who have had a good preparatory education who believe that in this

knowledge that they have valuable information to fit them to become retail pharmacists and usually they are very easily confused when it comes to the identification of specimens. Sometime ago I heard a judge in one of our city courts make some remarks in the course of an after-dinner address that impressed me very much. He said "the fact that you know that a certain drug is gathered in the Himalayas is not going to make you either a safe or successful druggist; you must know the nature and property of the substances you are handling and how safely to fill prescriptions and a good many other things that you only learn by experience." Any practical pharmacist knows this and yet the burden of most examinations in *Materia Medica* are upon questions that few teachers and examiners would pass an excellent examination upon without considerable study beforehand. While the aim of an examination before a Board of Pharmacy appears to be to test the candidate's knowledge, the college examination should be with an additional object, viz., to round out the knowledge gained during the course of instruction and give the student self-reliance and confidence in himself. It should not be with the object of getting him ready to pass the Board of Pharmacy examination as now conducted.

Now that the Boards of Pharmacy are seriously considering improving the methods of examination, it seems to me that we might well ponder upon the subject and try to look at it from the point of view of testing a candidate's fitness to practice pharmacy. In my judgment we must eliminate the idea that because a professor gives an interesting historical lecture upon certain drugs it is expected that the student will have all of this information at his fingers' ends. There are some things taught which make for the culture of the pharmacist and happy is the student who can sit under a professor that is learned and well-balanced. There is something deeper and more important to the pharmacist than this general knowledge of drugs and that is knowledge of the characters of the drugs which he handles in practice. The history of each drug is exceedingly interesting, but this does not become a real part of a pharmacist's knowledge save after many years of experience and reading which he can do without the aid of a teacher, and when his horizon has been broadened. In one sense the same may be said of descriptions of plants yielding drugs. As in the learning of a foreign language we lay the foundation by first taking up the grammar of the subject and later taking up as much reading and study of its literature as time and inclination permit, so in the study of Pharmacognosy we first take up the specific characters and properties of a drug and then follow this by as much reading and study of a general character as we are able to do. There is, however, nothing stimulating and so far as I can see it nothing useful in asking a question like the following: "Nux Vomica: (a) give habitat: (b) origin: (c) part used in medicine: (d) active principles: (e) official requirement." Ever since the days when I was a Quizz Master my conviction has been growing that questions of this type, which are asked on every hand, do more harm to the cause of teaching in pharmacy and to the development of professional pharmacy than is generally realized. Every man's knowledge must fit in this one groove. There is no individuality to be developed, no increase in knowledge expected and no vitalizing influence in either the subject as taught or the examination which follows.

The following is another type of question that is asked in certain states by the

Boards of Pharmacy and illustrates very forcibly the type of question that should not be asked: The questions for the most part being confined to unimportant drugs and specifying the reading of certain books makes it obligatory upon the candidate to determine before taking the examination the books on which the examination is based. The following is a typical example: "What dose is given in Remington's Pharmacy, Fifth Edition, of the following: *Rhus Glabra*, is it considered a poison? (b) What is a minimum dose of *Quercus*, *Rhubus*, *Geranium*? What is the common name of *Convallaria*? Name twenty-two incompatibles with mercuric chloride (Corrosive Sublimate). There are thirty-three. Name as the tenth edition of Potter's *Materia Medica* gives them. Does Potter's *Materia Medica* say Mercury is a tonic? Answer Yes or no. Does he say it is a poison? A purgative? From where is a *Veratrum* obtained? And in action, is it related to *Aconite* in any form? Answer Yes or No. What is the average dose of *Eucalyptus* as given in Potter's *Materia Medica*, Tenth Edition?"

In addition to the slovenly construction of the question and the veritable hodge-podge manner of associating the subjects, I think it is quite clear how questions of this kind really hinder sound pharmaceutical education. I think students are to be pitied who have to run the gauntlet of such examinations in the various states, and the wonder really is that young men of education and good training are willing to come into the ranks of Pharmacy. It is quite clear on the face of it that the examiners who ask such questions are quite incompetent to fulfill their duties.

Of all subjects that are living, interesting, full of the greatest of possibilities and of the greatest of benefit to the professions involved, there is no subject that offers such a fertile field for the teacher and that can hold the interest of the student like that of Pharmacognosy. I am quite aware that while my enthusiasm may be shared by some teachers that my point of view may not have occurred to them. However, I would say that the teaching of Pharmacognosy in its direct application to the retail druggist will prevail and if the examinations by Boards of Pharmacy bring out the practical knowledge of the candidate we will find that the student will also have attained culture and those things that constitute the professional man.

I have often thought that it would be a splendid thing if Pharmacognosists could meet together occasionally and discuss not only methods of teaching but the subject of examination questions. In order that we might improve on our work and be able to utilize the results of our colleagues in other colleges I have requested a number of professors to send me a set of model questions. I regret that there is not space for me to publish all of these at this time. One professor has written stating that as his course is entirely laboratory work it does not involve questions. This is certainly novel and I should like to know how it is done. Apparently the professor relies entirely upon the student's work during the course. I feel that really every teacher ought to know before the end of the term the standing of every student, but I feel as already stated, that an examination should be held more for crystallizing out the thoughts of the student and his knowledge gained than for any other purpose. In other words an examination should be in the nature of instruction to the student and should give him an opportunity of showing to what extent he has mastered the subject.

Professor Daniel Base has written in a spirit with which I heartily coincide, and I quote the following from his letter:

"I think State Boards would do well to confine questions in *Materia Medica* to the chief inorganic, vegetable and animal drugs and not ask questions about things with which the average pharmacist may have to do but once or twice in a year. The questions might reasonably involve a knowledge of botanical source, part official, when collected and why, description in correct terms, of the whole drug, drugs that resemble each other outwardly and how to distinguish them, the principal and some of the less important constituents, forms in which the drug is used, usual action of the drug, antidotes to principal poisonous drugs or their preparations, doses. I would advocate framing questions both in Board examinations and those of the college in such a manner as to test the candidate's thinking ability rather than his cramming powers. Perhaps this cannot be done so thoroughly in *Materia Medica*, as in Chemistry or Pharmacy, because of the nature of *Materia Medica* which necessitates memorizing to a greater extent than the other two subjects do. Examinations in Pharmacognosy, in addition to requiring the recognition of drugs from outward physical characters, taste, odor, fracture, chemical tests, etc., would properly require also microscopic knowledge, but I fear that the teaching and requirements in some states have not advanced to such a stage as that the Boards could be persuaded that the examinations should include microscopic work. In those advanced states in which the Boards would not hesitate to ask questions involving microscopic knowledge, I think the questions should be moderate and practical and perhaps along such lines as the following:

1. Relation between magnification and focal length.
2. Mounting of objects.
3. Familiarity with a few staining reagents, permanent and temporary.
4. Process of making a permanent mount, with two differential stains.
5. Ability to recognize and name the different kinds of cells in a section.
6. Naming the kinds of cells in a powdered drug, especially such as stone, bast, tracheids, trichomes."

One of the questions in the list submitted by Professor G. H. Janson strikes me as being very practical. It is, "In the examination of a powder, what elementary structures place it into the class barks, woods, and leaves?" Professor Albert Schneider has submitted a similar question which reads, "Name the tissues and tissue elements that are found in barks, and roots, in leaves, in seeds, in woods."

I also received a number of other lists of questions, but they did not strike me as having anything novel in them and so I do not give them at this time, although I will probably refer to them in another paper.

Professor Sayre has written in addition to sending me a list of questions some things that I feel like adding in this paper. He says, "Permit me to state that you could not get ten men to agree on any set of questions, nor to agree on the policy of making up the questions, but I venture to give you my own ideas in the limited time I have to dictate them off hand.

"In the first place, questions should have a carefully selected variety, that is, there should be a variety chosen from different classes of crude drugs. In the second place, in almost every question something should be drawn out of the student in his answers as to the microscopical and now and then, the botanical characteristics. Third, there should be sometimes added to the questions a general question rather than a specific one, such as, 'Write a paragraph or a treatise

of at least 250 words on what you know of a certain subject.' In the fourth place, I believe that examinations should represent modern thought and teaching and should include laboratory demonstrations where the student should have an opportunity to show, first, that he knows how to use the microscope, and second, that he has done microscopical work, and third, that he shall be able to demonstrate that he is familiar with certain microscopical processes. Fifth, I think that examinations in *Materia Medica* should be confined to well established and commonly recognized drugs."

In summarizing I may say then that in discussing this subject of the teaching and examinations in Pharmacognosy that I have not been aiming to establish an ideal, so much as to direct attention to the need of our considering our work from the standpoint of the practicing pharmacist. There are many things that every pharmacist should know and these relate especially to the specific characters and properties of the important drugs. Then there are other things which he ought to know of certain drugs and indeed should know to stimulate him in his professional work. But these are subjects that can be better handled in an oral examination than in written examinations. In Pharmacognosy we have a subject dealing with natural products and we should treat it in a natural way, instead of according to hard and fast lines involving the framing of questions in the form of riddles or conundrums which depend for their solution upon so much memorizing rather than clear thinking and direct study of the drugs themselves as we do in the study of other physical objects.

CHURCH FAIR PROGRAMS.

"When the unfortunate committee lady, to whose lot it has fallen to solicit advertising for the program, calls at your place and makes her timid request, don't freeze up. This is where the advertising begins and it's up to you to get all the benefit you can out of it. Get interested—ask the lady about her success so far—look the dummy over carefully and see what spaces are sold and to whom. Note a position that will not be in juxtaposition to anything incongruous. Tell madame that you will take a modest space under certain conditions. You have a cold cream, perhaps, that you want to push the sale of. You will take a certain space which you indicate, to advertise that article, if the ladies will accept payment in the goods. Explain that the cold cream can be readily turned into money by putting it on sale on one of the tables at the fair. People seeing it there will imagine that you donated it and this will add further to the good will which will accrue to you from the transaction. The ladies have not been refused—your goods will have been given display at the fair, and those who buy there will buy more of you very likely. The cost has not been as great as if paid in cash and yet your benefits are greater. Instead of handing out the amount in cash and feeling that you have been robbed of your money by a piece of genteel blackmail, go at it in this way and make it a benefit to you."—A. W. Rideout in *Practical Druggist*.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

THE COLOR OF TINCTURE OF IRON CITRO-CHLORIDE.

OTTO RAUBENHEIMER.

The writer does not wish to go into the chemical composition of iron citro-chloride, which has already been done by Prof. A. B. Stevens at the New York City meeting of the A. Ph. A. in 1907 (Proc. Vol. 55, p. 153), and again lately before the American Chemical Society.

Suffice it to state that the "tasteless tincture of iron" was introduced by Mr. J. L. J. Creuse, a Brooklyn pharmacist, in 1873, and after his death was manufactured for the widow by one of our members, Mr. J. D. Aug. Hartz, of College Point. Mr. Edw. Klein, the present owner of the Hartz pharmacy, was good enough to send me a sample of the Creuse preparation, prepared July 17, 1904, herewith submitted. I am also informed that Mrs. Creuse has discontinued supplying the market.

The color of tincture of iron citro-chloride (and this is the subject of my paper) is by no means uniform, as can be readily seen by the array of samples. As this tincture is mostly used in the preparation of elixir of iron, quinine and strychnine N. F., the very popular I. Q. & S., and as the beautiful green color of this elixir depends upon the color of the tincture, it is therefore a necessity to look into the cause of the variation. The N. Y. and Brooklyn Formulary ordered, for one pint of the finished product, 2100 grains of citric acid to be dissolved in boiling water, and 2270 grains of sodium bicarbonate to be gradually added, and when effervescence has ceased, 4 fluidounces of solution of iron chloride to be added. When cool sufficient water is added to make 12 fluidounces, and finally 4 fluidounces of alcohol.

In calculating the quantities, I find that sodium bicarbonate is deficient in this formula, as it takes 2534 grains (instead of 2270 grains) to form 3554 grains of U. S. P. sodium citrate. Perhaps this may have been intentional in order to have an excess of citric acid in the finished preparation.

In the N. F. I., 1888, the formula was changed by dissolving 7 troy ounces of sodium citrate with the aid of a gentle heat in a mixture of solution of iron chloride and water. The quantity of sodium citrate in this formula is only 3360 grains, quite a reduction from the theoretical 3554 grains. In the N. F. II., 1896, practically the same formula appears in the metric system; namely, 460 Gm. sodium citrate for 250 Cc. solution of iron chloride for 1000 Cc. finished tincture. However, the quantity of sodium citrate was again reduced to 410 Gm. in the later copies of the N. F. II. As the U. S. P. VIII decreased the strength of the

solution of iron chloride from 37.8 per cent. of crystallized ferric chloride to 29 per cent., consequently N. F. III, 1906, orders 350 Cc. of the solution representing the same strength as the 250 Cc. of the second edition.

The quantity of sodium citrate ordered by N. F. III is 410 Gms., which, however, has been increased to 425 Gm. in the Errata of March 15, 1907.

I will also mention that with all these changes, the strength of the "tasteless tincture of iron" has remained the same; namely 4 Cc. containing the equivalent of 0.5 Gm. of anhydrous ferric chloride.

When a formula is changed or modified in any edition of our standards as U. S. P. and N. F., then it proves beyond doubt that it does not produce a satisfactory preparation. And such is the case in tincture of iron citro-chloride. The submitted samples have been procured from retail pharmacists, from wholesale druggists, and also include some of my experiments. In order to facilitate comparison I have put them in bottles of the same size and shape. As can be readily seen, the color of this tincture ranges from a light or bright green to an apple green, to an olive green, a brownish and reddish green to a yellowish brown.

What is the cause of this great color variation? In order to determine it, and in order to get a uniform preparation, the writer has experimented for several years. The literature on this subject is very meagre indeed, as the books have nothing to say on it, and even that excellent "Digest of Comments on U. S. P. and N. F." does not mention "Tinctura Ferri Citro-chloridi" so far.

Dr. E. H. Squibb (Bulet. A. Ph. A., Sept., 1908, p. 280), recommends that the 425 Gm. of sodium citrate in the N. F. formula be replaced by 390 Gm. of potassium citrate, which will prevent the crystallization commonly complained of in making elixir of iron, quinine and strychnine. In answer to this criticism, I beg to state that during my own experience of manufacturing several hundred gallons of elixir I. Q. & S., and according to the experience of a number of other pharmacists, we have never had any precipitation in this elixir. Nevertheless, from the standpoint of economics, the substitution of potassium in place of sodium citrate should be considered as (1) it is about two cents per pound lower in price; (2) it requires about 10 per cent. less, because on account of containing only one molecule H_2O , its molecular weight is 322.08, while sodium citrate contains $5\frac{1}{2}$ molecules of H_2O , and has a molecular weight of 354.6.

In my experience it is immaterial, regarding the color of the tincture, if the potassium or the sodium salt is used, as frequently, in fact mostly, the desired apple green color is not obtained. Even by following the formula and using the chemicals of the very manufacturer who suggested potassium citrate, I failed to obtain in the proper color. During my many years of experiments I have also tried the following modifications of the N. F. formula:

1. Increase in quantity of sodium or potassium citrate, by taking from 10 to 50 Gms. more.

2. Instead of dissolving the citrate in the iron solution "by the aid of a gentle heat", as stated in the N. F., I have employed a higher heat up to boiling point.

While these two modifications will *sometimes* help to develop the apple green color, I came to the conclusion that the fault does not lay in the sodium citrate, which is a stable and uniform chemical, but in the solution of iron chloride.

The U. S. P. requirements are that Liquor Ferri Chloridi should contain 29

per cent. anhydrous FeCl_3 , corresponding to about 10 per cent. metallic iron, and furthermore, that nitric acid, which is used in the oxidation process, should be absent. In my experience, the solution also differs greatly as to its acidity; i. e., its excess of hydrochloric acid, of which a little is needed to prevent the formation of a basic or oxychloride.

From experiments which extended through several years, I found that when the acid solution of ferric chloride is partly neutralized, either before or after the addition of sodium or potassium citrate, then the beautiful apple green color will be developed.

My *modus operandi* is as follows: Heat the diluted solution of ferric chloride, and dissolve therein the sodium or potassium citrate. In case the apple green color is not brought out, then gradually add a little sodium bicarbonate, and heat to expel CO_2 before adding more, until the desired shade of green is obtained. When cool, add a sufficient quantity of water, and lastly, the alcohol. According to my experiments, from 15 to 25 Gm. NaHCO_3 are required for 350 Cc. solution of ferric chloride, or 1000 Cc. finished tincture.

Besides sodium bicarbonate, the carbonate or also potassium carbonate can be used with the same results. The iron in this preparation is in the ferric state, presumably as a double salt of iron and sodium citrate.

Care must be taken not to add too much alkali or an olive green color is developed. By the addition of still more alkali the green color will disappear entirely, and when neutral, then the preparation has a red color, and is now a ferrous salt instead of being in the ferric state.

In my opinion, our N. F. should recommend the addition of a sufficient quantity of NaHCO_3 to bring out the apple green color. It might also substitute 390 Gm. of potassium citrate in place of 425 Gm. sodium citrate. The N. F. IV might also give a short description as to color, taste and reaction, also tests for the absence of ferrous salt, and last, but not least, a statement of keeping this tincture in amber bottles protected from light which, as it is well known, will reduce iron preparations from the ferric to the ferrous state.

DISCUSSION.

A. B. STEVENS: "Mr. Raubenheimer has called your attention to the fact that in order to obtain the apple green on the addition of the citrate to the tincture of chloride of iron it is necessary to neutralize the mixture with sodium carbonate, but should you add too much sodium carbonate you will obtain a brown color. The neutral citro compound is green and does not respond to ordinary tests for iron, either ferrous or ferric, but on the addition of a few drops of acid it gives the characteristic tests for iron in the ferric condition. The first addition of the carbonate simply combines with the free acid in the tincture. Upon further addition of sodium carbonate ferric hydroxide is formed which redissolves in the chloride present. The depth of color depending upon the amount of hydroxide formed.

"The green solution may be separated into a crystallizable and a non-crystallizable substance. By adding alcohol to a concentrated solution of the citro compound you obtain a precipitate which may be washed with alcohol until free from chloride, but this is very tedious. A better method is to add alcohol to the concentrated solution until a permanent cloudiness appears, then pour this mixture into strong alcohol. In a short time, what at first appears to be a precipitate separates in the form of a dark green, thick liquid. Pour off the alcohol and add sufficient water to make the solution thin enough to pour easily, and again pour into strong alcohol, stirring constantly. If this operation is repeated several times the precipitate becomes a thick plastic mass, free from chloride. If this is covered with alcohol and left for

a few hours it assumes a solid amorphous mass, which, on removal of the alcohol and drying may be easily powdered. The powder is strongly acid and consists of iron, potassium and citric acid. The molecular formula has not yet been determined, but from the character of similar compounds I presume we will find that the iron has replaced the hydrogen of the citric acid radicle.

"If the alcohol, from the precipitation of the citro compound, be distilled or evaporated to dryness potassium chloride may be obtained. These experiments prove that the compounds which we have called citro-chloride and citro-iodide of iron are not true to name but are potassium iron citrates.

"Syrup of citro-iodide of iron manufactured strictly according to the National Formulary will always be brown, due to the presence of free iodine. It has been recommended to decrease the last portion of iodine or increase the first portion. This would give an excess of ferrous iodide, which would be objectionable, as it would soon oxidize and the syrup become brown. A better method would be to follow the formula and then remove the excess of iodine by shaking with starch and filtering."

MR. FORD: "The quality of sodium citrate on the market is not uniform as found in the Middle States. The quality of ordinary sodium bicarbonate is also quite different from the U. S. P. substance, and in the preparation of Tincture of Iron Citro-Chloride it is important to use the official article.

"I have always had good success using potassium citrate, as in the original Creuse formula, and believe that failure in the process is commonly due to the use of an inferior quality of alkali salts."

MR. RAUBENHEIMER: "Prof. Stevens' process for making Syrup of Iron Citro-Iodide by removing excess of iodine with starch, has been accepted for the new edition of the National Formulary.

"In developing the green color of citro-chloride tincture only a small quantity of the alkali should be added at a time, and the liquid should be heated to the boiling point, if necessary, to expel CO_2 and develop the desired apple green color. In the specimens submitted it required from 10 to 30 grams to develop that color. Experiments made together with Dr. Francis prove that by further addition of NaHCO_3 the green color is destroyed. As soon as the preparation is neutral a brown color will develop in the tincture. The iron is not detectable in these citro preparations unless they are first acidified with a mineral acid."

THINKING IN MONEY.

"There are some people that think so much of money for its own sake that they have learned to think only in the terms of finance and to talk only in the language of the counting house. They have no ear for any music except the clicking of the cash register. They can see nothing in all that God has created that is worth while, except as it may be converted into some marketable product.

"There are men who would gather up the rays of the sun and the glitter of the stars and coin them into gold. There are men who would convert the Mammoth Cave into a subway, the Natural Bridge into a toll-gate; that would plow up our parks and plant them in corn and potatoes; that would sell the Statue of Liberty and Bunker Hill for Marconi receiving stations; they would lease the Washington Monument for a billboard and stretch the equator in the back yard for a clothes line; but there are some men who earn their money, who get it honestly, who appreciate it because of the opportunity that it gives to serve themselves and their fellow men.—*Charles F. Moore*, Editor of "Paper."

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

COOPERATION AND CONSOLIDATION.

A. R. L. DOHME.

This is the age of cooperation and consolidation of effort and interest. Everything is drifting in that direction. It is natural that it should, for it makes for economy and result. Those trades or professions which have been successful and advanced their status, their efficiency, and their general welfare are those in which cooperation and consolidation have progressed furthest. If this cooperated and consolidated effort is well directed and honestly managed on the principle of the greatest good to the greatest number, it invariably benefits all concerned, and the best instance of it is the American Medical Association, which has accomplished wonders in helping its members, advancing their standing as professional men, and obtaining desirable and necessary legislation for its members.

Cooperation and consolidation are beneficial to all concerned in the following ways:

First: Commercially, in dollars and cents. Dues for several organizations cost more than for one; expense to attend several meetings costs more than one.

Second: Legislatively, in accomplishing better but less laws for state and nation. One large organization representing the entire profession would receive a respectful and effective hearing where a division in the rank and file weakens their effectiveness. How can a committee of Congress or of a legislature pay any heed to the recommendations of the legislative committee of the A. Ph. A. when these recommendations may be offensive to the N. A. R. D. or vice versa?

Third: Socially, in pleasure and enjoyment and status before the people. To feel that we belong to a national organization of one's own profession fills one with just pride and pleasure, but this cannot well be the case when we have two or more separate, distinct bodies each fighting its own battles, and at times fighting the efforts of the sister organization. How much more pleasure to attend a large meeting of all the profession and meet all of them instead of only a portion of them. How much more advanced and high is the standing of a united organization than a divided organization in the eyes of the people and of the press?

Fourth: Generally, in generating harmony and good fellowship among the profession. Harmony in a profession is a wonderful asset when it comes to accomplishing anything in which it is interested. As long as there are several organizations of the same profession, absolute harmony cannot and as a matter of fact does not exist.

Let us look among the allied branches of the profession and what do we find?

There is only one wholesale druggists' association, the N. W. D. A., which as its motto says, "buildd better than it knew." There is only one proprietary association, "The Proprietary Association of America," and how effective and beneficial it has been to practically all its members is well known to you all. There is practically only one medical association of national scope among the allopathists and its tremendous membership and its wonderfully broad, successful, and instructive meetings speak louder than anything I can say for the efficiency of consolidation and cooperation. Why then should pharmacy be the exception and persist in maintaining a divided household? Is there any rational reason why the A. Ph. A., founded in 1851 and busying itself heretofore principally with scientific pharmacy, and the National Association of Retail Druggists, founded in 1894 and busying itself principally with commercial pharmacy, should not amalgamate into one large, representative, and influential organization? Personally, I can see no real rational reason why they should not, as, for instance, what name shall such resulting association have and which shall submerge itself? To me those seem minor questions to the general broad problems of let us join hands in good fellowship and brotherhood. It has always been clear to me that the A. Ph. A. has not paid enough attention to the commercial side of pharmacy and thereby lost the interest of that great number of pharmacists who have realized that the pharmacy of today is largely merchandizing and requires close attention to and intimate knowledge of merchandizing and commercial usage and practice. You will find that as a rule the most successful pharmacists are usually not the scientific kind, just as the most successful merchants are not the scientific kind. The latter no doubt themselves know more about their preparation, their solubilities, incompatibilities, assay, purity, etc., but their trouble is that they pay so much attention to the preparations themselves that the store soon looks unclean, the clerks look much the same way, the store does not study the public demands and the question of profit upon goods sold is of secondary importance. Their theory is, rather make your own tincture of belladonna and assay it yourself so you know it is correct in every minutia and make not one iota of profit upon it than run chances of its being wrong. Every one of our cities can point to dozens of such druggists. They are great on discussing the theory of the profession but mighty weak on putting it into practice. What you all are looking for is increased volume and profits in business. This is commercial pharmacy, involving knowing how to advertise to the public, how to please your customers and how to gain and hold the physician's confidence. There is no doubt we have too many pharmacists in most of our cities, just as we have too many physicians, and the result is that the survival of the fittest comes into play, and this means that those pharmacists who combine in themselves the ability to select the capable and honest helpers, actively advertise their business, keep their store scrupulously neat, clean, and up to date, and secure the acquaintanceship and confidence of the physicians of their city, will survive. The man who can and does make all his tinctures, fluid-extracts, emulsions, pills, capsules, plasters, etc., and in doing so lets the store look dingy and does not keep up the books and the cash account will sooner or later be superseded and fall by the wayside. My only purpose in bringing out this point is, that the reason the N. A. R. D. ever had a reason for being born and growing into the strong body it now is, is because the A. Ph. A. had too many

"watch your percolator" members and too few "watch your profits" members. The follower of the "percolator" philosophy never seemed to increase his bank account, while the follower of the tidings of his cash register seemed to wax richer and fatter and happier.

If the N. A. R. D. and the A. Ph. A. would consolidate and each continue its present occupations and activities, but merely meet at some time and place, it would be a great step in advance. If you please, let them meet together as separate organizations at the same place and have their amusements only in common—shake hands and meet socially. The next year, let them repeat this but hold joint meetings upon topics which they have in common, and the third year let their program committees get their heads together and have a joint program throughout. If this greatly to be desired object can be accomplished in less than four years, all the better for all concerned. That it should be accomplished will, I feel sure, meet with the hearty concurrence of practically all of the members of both associations. That its accomplishment will greatly advance the standing of the profession of pharmacy, and the welfare of its members seems self-evident to me.

DISCUSSION.

MR. GUILFORD: "It seems to me that the callings of the two associations are so different—the one commercial and the other professional—that it would not be feasible to consolidate them, though I speak without giving the matter any particular thought. It does seem to me, however, that it would be well if we could get nearer together, that is, if we could hold our annual conventions at the same place, the one immediately following the other, so as to offer a greater opportunity for members to attend both meetings. I think this would increase the attendance and that both associations would profit by it."

H. P. HYNSON: "The subject dealt with by Dr. Dohme's paper has caused me a great deal of thought because I believe we must decide that question. There is absolutely no reason for wanting the N. A. R. D. to consolidate with this Association. This is an association of pharmacists where the educational and professional features are emphasized. The retailer has other problems than these, commercial problems which can best be decided by the N. A. R. D. The Wholesalers' Association does not desire to come into this association, and yet it would be just as practicable for the Wholesalers' Association, the Proprietors' Association and the Chemistry Association to consolidate with this society as for the N. A. R. D. to do so.

"I know something about the National Association of Retail Druggists, and it is a matter of pride and pleasure to me that I have had something to do with its origin and development. I am glad to see it coming out of tribulation into the field of usefulness, and I believe the N. A. R. D. is going to solve its own problems.

"We should have a Legislative Conference of all the pharmaceutical interests of this country, and I want you to think of the possibility of this catholic association of ours forming a conference on National legislation."

C. A. MAYO: "I believe Mr. Hynson's suggestion of a National Legislative Conference is the proper solution of the question of national legislation. In New York City we had imposed upon us a regulation most onerous and objectionable. A conference was called of every pharmaceutical organization, each of which was invited to send two delegates. We then went to the Board of Health and said, 'Gentlemen, we represent seventeen different pharmaceutical organizations of New York City, we represent every pharmacist in this city.' And they listened to us."

MR. GUILFORD: "The N. A. R. D. has called a Conference on Legislation to meet at the Niagara Falls Convention, and one session of the convention has been set aside for legisla-

tive work. The session will be presided over by the Chairman of the Legislative Committee and any druggist will have the privilege of the floor at this time.

"We have invited the president of every pharmaceutical association in the United States to send a delegate to attend that particular session. I want to invite all of you gentlemen, especially those who have never attended the N. A. R. D. to meet with us this year.

"While we do not go into the professional part of pharmacy, we do try to do everything we can for the retail druggist in a commercial way. We are officered by retail druggists for the interest of retail druggists, and our association was never in a better condition financially or in membership than at present."

T. V. WOOTEN: "I, too, have been much interested in the relation of the two organizations, the A. Ph. A. and the N. A. R. D. I am inclined to agree that there are so many things to be considered by the two organizations that it is almost impossible to form one organization that can adequately accomplish the business of both. It does seem feasible to me, however, that these two organizations should hold their annual meetings quite close together, if not the same week, then parts of two weeks which come together; one meeting the latter part of one week and the other the early part of the next week, or some similar plan."

THE DRUGGIST'S PLAIN DUTY.

When a piece of drug merchandise is labeled "consumption cure" or "cancer cure" is it not at least as much the business of the druggist to know whether it is what it pretends to be and to refuse to offer it for what it is not, as it is the hardware man's business to know the difference between stamped sheet-iron, tinned, and block tin? And are there not "shoddy" goods in cod liver oil preparations that are as far from being true to label as their congeners in the dry goods world are from being first-class woven worsteds? Then what about the preparations advertised in the fake beauty column of the daily papers, the poisonous mercuric freckle removers, and the others which are positively harmful or just plain humbugs? That a great many people want, or think they want, these things, is true; that they expect the druggist to supply them is also true. A third truth which should be considered in this connection is that the public are influenced in their estimation of the value of such preparations by the attitude toward them taken by the druggist. The public believe, and have a right to believe, that the dealer is in a position to know, and does know, better than they the value of the goods he handles. If he endorses an article, actually or tacitly, he should know that it is worthy of his endorsement. If he knows, or feels, or has good reason to suspect, that the piece of merchandise asked for by a customer is not what the customer believes it to be, it is his duty as an honest merchant to advise the customer.—*Druggists Circular.*

MORBID FAITHFULNESS TO DISCIPLINE.

"They tell us of the 'sublime nobleness' of the Roman soldier at Pompeii, whose skeleton was found centuries afterward, imbedded in the once molten lava which swept down upon the doomed city. He was still standing at one of the gates, at his post of duty, still grasping a sword in his crumbling fingers. His was a morbid faithfulness to a discipline from which a great convulsion of nature had released him. An automaton would have stood there just as long, just as boldly, just as uselessly."—*William George Jordan.*

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

SOME PHARMACISTS IN NEW YORK CITY THREE-FOURTHS OF A CENTURY AGO.

EWEN MCINTYRE.

A country lad, the third of six brothers, with an education primarily acquired in the little red school house, with an added two and one-half years at what was then known in New York state as the "Academy," now obsolete, to secure that education walking nearly three miles morning and evening, realizing the need of a choice of his life work, secured a position in New York City with George D. Coggeshall, corner of Rose and Pearl streets, the corner now occupied by Scott and Bowne's Cod Liver Oil business. The then prevailing arrangement for an apprentice was for four years; compensation, board and lodging, two courses of lectures on Pharmacy and Chemistry, and at the end of the four years, \$150 in money.

The country lad served the four years, graduating at the College of Pharmacy in 1847. He remained with his employer three years longer, and then being seized with a desire to do for himself, opened a modest store at what was then considered out of the city, at the corner of Broadway and 18th street. At the time cows were kept on one of the opposite corners and milk sold; on another corner pigs were kept. It may interest some beginners to state that the receipts for three weeks averaged less than 11 cents a day, and for three months about one dollar. There were no houses above 16th street, on the east side, and none above 23d street on the west side of 5th avenue. Corporal Thompson's coach house was at 23d street, Broadway and 5th avenue.

The store doing the largest prescription business at this time was at No. 6 Bowery, carried on by Adamson & Olliffe. Mr. Adamson was a well educated man, highly esteemed in his profession, of most decided character and opinions. He was president of the N. Y. College of Pharmacy at the time of the enactment of the first law for the inspection of imported drugs, chemicals and pharmaceutical preparations, and took an active part in all movements for progress and higher aims in pharmacy. An answer to his letter to English manufacturers and exporters, viz., that "chemicals and preparations exported to this country were as good as we Americans would pay for," went far, very far, to pass the bill. The store, No. 6 Bowery, is still being carried on in the old wooden building, a curiosity hidden under modern necessity for rapid transit, by the unsightly elevated railroad. There is none of the old firm interested in the present store; all have passed away.

Rushton and Aspinwall carried on the first store on lower Broadway near Maiden-Lane. It was probably the largest and most showy store in the city at the time, and in its history passed through many changes. Mr. Aspinwall separated from the firm and for many years carried on a store at 86 William street,

a wholesale and retail store doing quite a large business, especially wholesale, but he got into some difficulty with the government concerning duties on Oil of Bay, finally made a disastrous failure, and soon after died, and the business closed. Rushton continued the business at the Broadway store for some years until his death, when his clerk, Wm. Hegeman, taking in a partner, A. M. Clark, continued the business until Mr. Clark's decease, when the business continued under Mr. Hegeman's name. At one time he had five stores on Broadway, but alas, panic and hard times came, rents had to be paid, business or no business, and he failed, and soon afterwards died. Mr. Hegeman was a good pharmacist, was president of the College, taking quite an interest in his profession. His son for a few years had a store near 10th and Broadway, and was a most capable and efficient secretary of the College for several years. He died, and now there is only the name left used as a trade mark to exploit the modern departure in business, combinations and associations without an atom of personality in them.

John Milhau, a French refugee from the massacre and rebellion in San Domingo, carried on the next store at 183 Broadway. He was a gentleman of the old school, well educated, polished and courteous in his manners and of kindly disposition; had a fine business, and for many years supplied the navy with drugs. I had the great pleasure of his relation to me at my store of the incident that decided him to choose Pharmacy as his lifework, and I think it is worth repeating. When Mr. Milhau and his father escaped from San Domingo during the rebellion and landed at Baltimore, in order to save some of their property it was necessary to get some gold. After a diligent search all over Baltimore, it was found impossible to secure what they needed, but they were told there was an old Portugese apothecary in the city, and if they would go to him and tell him their story and its needs, it was thought he could supply what they wanted. They did so, and the old apothecary at once went to an iron box and produced the needed gold in Spanish doubloons, so on leaving the shop young Milhau said to his father, I shall have to choose some business, and as the only party in Baltimore that has gold is an apothecary, I shall choose that business, which he did. One of his grandsons afterwards informed me that his grandfather entered business in Baltimore and was able at 20 years of age to sell his business, go to Paris, enter the schools there and graduate as an apothecary; and also related that his grandfather was a relative of General Lafayette, who advised and urged Mr. Milhau to go into business in Paris. Mr. Milhau declined the advice, stating that America was his country and he would return to it, which he did, opening the store at 183 Broadway. Lafayette was at Mr. M.'s wedding, the grandson stating it was one of the reasons of his, Lafayette's, second trip to America. Mr. Milhau took much interest in every movement for educating and improving the members of his profession, for many years was a trustee of the N. Y. College of Pharmacy and its president for some time, and active in the organization of the A. Ph. A. At his decease his son continued the business for some years, but at his death the business passed from the family and was closed.

Charles Ring, corner of Broadway and John street, was the next store. The place was notorious as a back-room bar. It was not very long lived as a business. Ring was my immediate predecessor at G. D. Coggeshall's as clerk.

The store at the corner of Broadway and Chamber was the next, kept by

a Mr. Hart, a quiet man who seemed to do a nice business and never to be much interested outside of his store. The business was closed when A. T. Stewart put up his great store on that block, including the drug store corner.

John Meachin was the next, at 511 Broadway. He was a graduate in pharmacy, and clerk, I think, at the Hegeman store; was greatly interested in his profession, secretary of the College of Pharmacy for many years, had a good business, continued for many years at the same place. At his death his clerk, Mr. Marsh, continued the business at 511 for a time and finally moved to Broadway near 22d street, and at one time the firm was Gautadan and Marsh.

Adamson & Olliffe had a branch store for a time at the corner of Broadway and 4th street. At Mr. Adamsan's death John Caucevan carried it on in his own name.

J. and I. Coddington had the store at the corner of 8th street, under the N. Y. Hotel, for several years, moving to Union Square finally, where both brothers died and the business was closed.

A curious character by the name of McNally had for a time a store at the corner of Broadway and 12th street, but finally sold it to a Dane whose name I have forgotten. The Dane moved to near 20th street, carrying on the business there until his death, when it was closed. Rushton opened a store, Broadway and 14th street, a very showy store, but in 1849 it was owned and carried on by a Mr. Merseveau, and in a year or two by Thos. T. Green, a good apothecary, but irritable, cross-grained and not a success in the business. He died and the store was sold out at auction.

Helmbold, proprietor of Helmbold's Buchu, who used to drive around the city four-in-hand, spent a good deal of money in fitting up a store near Broadway and 17th street, but before he was ready to open it he was declared by the courts to be crazy, and the store was never opened. It was finally sold out at auction.

The next was at the corner of Broadway and 18th street, where it was carried on eight years on the southeast corner, and forty more years on the northeast corner, when it was closed and the business removed to 55th street and 6th avenue, and is still continued.

Now after all these years the lad is still spared, greatly honored by the A. Ph. A. at its last gathering by its action so entirely unlooked for and unexpected. He wonders if it be possible that in the next seventy-five years the marvelous progress that has taken place in his day will be repeated. He remembers that he has counted thirty or forty wagons and teams a day, known as "prairie schooners," loaded with a few household effects and sturdy New England pioneers, on their way to settle the West; now the great states of Ohio, Indiana, Illinois and Michigan. He has seen building the second traffic railroad in this country, from Schenectady to Utica, passing near his father's door. In those days there were no matches, no photographing, telegraph, electricity and its marvelous adaptation in the service of our everyday life. There was no A. Ph. A., even. Shall all this great progress go on? And why not? For even now we see machines and men flying in the air. So it behooves every member of this Association to stand with one purpose, one aim, to raise high the standard of our profession, and do all that we can and should do in relieving sickness, suffering and pain so largely a part of man's inheritance.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter:

(Fourth Installment.)

Drugs: Identification by Pyro-Analysis.—L. Rosenthaler finds that useful assistance in the identification of a drug can often be obtained by subjecting it to heat in the dry state and examining the sublimate produced. This is specially the case where the drug is in too fine a powder for recognition by microscopic characters, and the quantity available is too small for ordinary chemical examination. A small quantity of the powder is introduced by means of a long funnel into a suitable tube, so that none of it comes into contact with the side walls; the drug should be covered with a layer of asbestos, to prevent any of the powder being carried up mechanically. The tube is closed with a rubber stopper having two holes, one of which carries a doubly-bent tube leading to a small vessel acting as receiver, and a tube through the other leads to an air pump. The air is exhausted, and the tube containing the drug heated in a bath of sulphuric acid or paraffin; a sublimate will generally form in the same tube, and other distillation products will pass into the receiver, and can be tested by treatment with various solvents, etc. The following drugs gave crystalline sublimes when treated in this way:

Cinchona gave a nearly colorless tar, containing crystals, which appeared as triangles, rhombs, and hexagons, and showed bright colors with polarized light; they were insoluble in ether, soluble in alcohol or acetic acid, the latter solution giving a precipitate with picric acid, Wagner's reagent, or Mayer's reagent.

Barberry Leaves gave colorless irregular crystals, showing bright colors with polarized light, and giving reactions of hydroquinone.

Frangula Bark gave yellow columnar crystals, united with each other at angles of 45° and 90°. An ethereal solution of the sublimate gave with caustic soda the red color of oxymethylantraquinone.

Cascara Sagrada gave bright yellow amorphous masses containing needle-shaped dark yellow or brown crystals, and darker colored drops; the oxymethylantraquinone test gave a positive result in this case also.

Rhubarb gave bright yellow masses containing crystals, some lance-shaped and single, others needle-shaped in radiating groups; the residue of an ethereal solution gave a purple color with caustic soda.

Galls gave crystalline layer resembling "ice flowers," and giving reactions of gallic acid with a little pyrogallol.

Hydrastis yielded a tar, at first colorless and afterwards brownish-yellow, which became completely crystalline with a dendritic appearance, or in parts with an appearance like that of threads of bacteria; neither hydrastine nor berberine was found in the sublimate, alcoholic solution of which gave a green color with FeCl₃.

Characteristic sublimes were also obtained from *Opium*, *Cubebs*, *Calabar Beans*, *Black Pepper*, *Aniseed*, etc.—Ber. d. Deutsch. Pharm. Ger., 1911, 6, 338.

German Tobacco: Distribution of Nicotine in the Plant.—Dr. R. Gaze reports the results of a long series of experiments undertaken with the object of ascertaining the distribution of nicotine in different parts of the tobacco plant, his experiments being confined principally to tobacco grown in Germany. His results show that the nicotine content of German tobacco does not alone vary considerably in individual plants of the same species—ranging from 0.56 to 0.1%, but it varies in the individual leaves of the same plant, as well as in the axils—the content of alkaloid at the axil points being appreciably smaller than in the other parts of the leaf. The ex-

periments were carried out in each case with nine plants of each species planted in June and harvested in August, which were raised from seeds reliably obtained from seven different localities.—Apoth. Ztg. XXVI (1911), No. 90, 938.

Linseed: Percentage and Properties of Mucilage.—According to the investigations of H. A. D. Neville, linseed contains about 7% of mucilage, which, as obtained by swelling up the seeds in very dilute sulphuric acid and precipitation from the colloid solution obtained with much alcohol, is a slightly acid substance, having a percentage composition corresponding to a carbohydrate, and contains a small quantity of ash. Purification by repeated solution in water and precipitation by alcohol lowers the ash-content somewhat, but does not remove the acid property. On hydrolysis with diluted sulphuric acid, dextrose, galactose, arabinose, xylose and small amounts of cellulose-like substance and of an acid yielding a soluble barium salt, are formed; while on boiling with hydrochloric acid, furoirol is evolved in quantity corresponding to the presence in the mucilage of about 17% of pentosans. Malt extract, saliva, and pancreatic juice have no action on the mucilage.—Pharm. Jour. and Pharmacist, Oct. 21, 1911, 528; from Chem. Trade Jour., Sept. 16, 1911, 265.

Curcumin Paper: Preparation.—The "Vierteljahrschrift f. prakt. Pharm. (1911, 72,) recommends the preparation of curcumin paper by dipping sheets of the best white filter paper in a solution of 0.1 Gm. of curcumin in 100 Cc. of 90%, drying the paper in the dark and so preserving it in well-stoppered bottles. Curcumin is made for this purpose by drying turmeric at 100°, extracting it in a Soxhlet with petroleum benzin for four hours, then drying, and extracting it in the Soxhlet with benzene (benzol) for 8 or 10 hours. On cooling, the curcumin separates from the benzol solution within 12 hours.—Pharm. Zentralh. LII (1911), No. 34, 900.

Powdered Rhubarb: Detection of Turmeric.—Dr. E. Richter gives the following directions for detecting turmeric in powdered rhubarb by means of boric acid: Triturate 0.1 gm. of the powder with 5 drops of a 1:30 solution of boric acid which has been acidulated with hydrochloric acid, spread the magma out on a watch glass as far as pos-

sible and evaporate to dryness on a water bath. The dry residue is scraped from the watch glass, triturated as fine as possible, a portion of the powder is transferred to an object glass with a drop of liquid paraffin. Under the microscope the presence of curcumin is then distinctly revealed by the red color of the particles, the rhubarb simply retaining a yellowish color.—Apoth. Ztg. XXVI (1911), No. 88, 921.

Casimiroa Edulis: Constituents of the Seeds.—Under the title of "Zapote blanco" the Mexican Pharmacopœia recognizes both the fruit and seed of *Casimiroa Edulis*, a tree widely distributed throughout Mexico and Central America. The fruit is edible, but the seeds have been stated to be deleterious and even poisonous, and although the subject of chemical investigation, and reported to contain both an alkaloid and a glucoside, no definitely characterized substance has hitherto been isolated from them. Frederick B. Power and Thomas Callan have now made a complete chemical investigation of these seeds in the Wellcome Chemical Research Laboratories, and report the results obtained with 37 kilograms of the kernels. This material was first completely extracted with hot alcohol, the greater portion of the alcohol then removed, and the resulting thick extract distilled in a current of steam. A small amount of a pale yellow essential oil was thus obtained, which possessed an agreeable aromatic odor. It has the following constants: $d=0.9574$ at 20°; $n_D=1.525$ in a 25 Mm. tube. From the portion of the extract which was soluble in water there were isolated: (1) A new alkaloid, *casimiroine*, $C_{24}H_{30}O_8N_2$ (m. p. 196-19°), of which the aurichloride and picrate were prepared. This alkaloid, on heating with alkalis, undergoes hydrolysis with the elimination of carbon dioxide, yielding a new base, *casimiroitine*, $C_{22}H_{28}O_7N_2$ (m. p. 171°), in accordance with the following equation: $C_{24}H_{30}O_8N_2 + H_2O = C_{22}H_{28}O_7N_2 + CO_2$, (2) A new alkaloid *casimiroedine*, $C_{17}H_{24}O_6N_2$ (M. P. 222-223°), of which the aurichloride was prepared; and (3) benzoic acid, with a trace of salicylic acid. The aqueous liquid contained, furthermore, a quantity of sugar, which yielded d-phenylglucosazone (M. P. 205°).

The portion of the extract which was insoluble in water consisted of a soft, oily

resin, from which the following compounds were obtained: (i) Sitosterol, $C_{27}H_{46}O$; (ii) ipuranol, $C_{25}H_{38}O_2(OH)_2$; (iii) a mixture of fatty acids consisting of palmitic, stearic, oleic, linolic, and linolenic acids; (iv) a new lactone, casimirolid, $C_{21}H_{32}O_6$; (M. P. 229-230°), which yields a new hydroxy-acid, designated as casimiroic acid, $C_{22}H_{34}O_4(OH).CO_2H$ (M. P. 207°). From this acid there were prepared the silver and copper salts, methyl ester, and acetyl derivative; (v) a yellow, phenolic substance $C_{11}H_{12}O_6$ (M. P. 215-218°), which also appears to be a new compound. Physiological experiments conducted by Drs. Dale and Laidlaw failed to reveal any specific action of this material or any of the products described.—Pharm. Jour. and Pharmacist, Nov. 11, 1911, 623.

Wallflower Oil: Preparation and Properties.—From the flowers of *Cheiranthus Chciri*, L. (the common "Wallflower"), E. Kummert obtained by extraction with low boiling solvents a dark-colored extract of an ointment-like consistence which when freed from wax and fats by means of strong alcohol and subsequent subjection to steam-distillation, yielded 0.06% (calculated on the flowers?Rep) of an oil having the following constants: b. p. 40° to 150° (3 MM.); sp. gr. at 15°, 1.001; acid val., 0.35; ester val., 20.0; sapon. val., 20.35. When strongly diluted this oil had the natural odor of the flowers, but in the concentrated state it had a disagreeable odor. Subjected to fractionation in vacuo (3 MM.), a small fraction of bodies boiling below 40° was obtained. These bodies had an unpleasant odor, and were probably of the nature of mustard oil. From the higher boiling fractions a mixture of odorous bodies was obtained, pointing to the presence of *anisic aldehyde* and *irone*. Furthermore, after freeing the oil from ketones and aldehydes, the presence of nerol, geraniol, benzylalcohol, linalool, traces of phenols and lactones, together with acetic acid, salicylic acid, and anthranilic acid were determined. Finally, from the highest boiling fractions, which had a well-marked odor of indol, the author isolated the methylester of anthranilic acid, indol and a small proportion of bases with an odor reminding of pyridine.—Schimmel's Rep., Oct., 1911, 05; from Chem. Ztg. 35 (1911), 667.

Cardamom Root Oil: Yield and Proper-

ties.—From cardamom roots received from Indo-China, Schimmel & Co. have obtained, in a yield of 0.64%, a lemon yellow oil possessing a peculiar aromatic odor, which bears no resemblance to that of the oil from seed. So far, attempts to ascertain the parent-plant of the oil have been unsuccessful. The oil gave the following constants: d_{15}° 0.9066, $a_D^{32^{\circ}57'}$, $n_D^{20^{\circ}}$ 1.48151, acid v. 3.7, ester v. 87.9 ester v. after acetylation 96.7. The oil was soluble in 0.5 vols. 95% alcohol; when more alcohol was added the mixture rapidly turned turbid, and did not become clear again until the solvent had been increased to 4 vols. The results of further examination, which is given in some detail show the presence in this cardamom-root oil of cineol, bisalbolene and a paraffine—bisalbolene being the principal constituent.—Schimmel's Rep., Oct., 1911, 105.

Nilgiri Wintergreen Oil: Botanical Source and Characters.—Werner Reinhart communicates a short account of the preparation of wintergreen oil in India from *Gaultheria fragrantissima*, Wall (*G. fragrans*, D. Don.; *G. punctata*, Blume; *Arbutus laurifolia*, Buch-Ham.), a little-known plant which occurs gregariously over extensive tracts of the higher Nilgiri-region, and is also frequently met with in the Palni and Travancore Hills. It differs markedly in its habits from *G. procumbens*, L., the parent plant of the American wintergreen oil, which is a small, creeping shrub, while *G. fragrantissima* grows into a strong high bush. The oil is prepared by the natives in the neighborhood of Cotacamund by simple distillation of the leaves with water in primitive copper stills, the oil yield being very small, and the distilling therefore unprofitable. A sample of this Nilgiri wintergreen oil accompanying Mr. Reinhart's communication was examined by Schimmel & Co. While it resembles the oil from *G. procumbens*, both in odor and its other properties, it was inactive, whereas the latter is faintly laevorotary. The following constants were obtained: d_{15}° 1.1877; $a_D^{0^{\circ}}$; $n_D^{20^{\circ}}$ 1.53485; ester val., 364.8=99% methyl salicylate. Soluble in 7 vol. and more of 70% alcohol. The oil had a reddish-brown color.—Schimmel's Rep., Oct., 1911, 96-97.

Licorice: Valuation of the Root and Commercial Extracts.—Ella Eriksson contributes an interesting and practical paper on the val-

uation of licorice root and the commercial extracts prepared from it, on the basis of the sweetening components of the same. While glycyrrhizin must be regarded as the principal sweetening ingredient, and its estimation is therefore of primary importance, the valuation of a sample of root or extract is not complete without the determination of the sugar—saccharose and glucose—which are also present though in variable quantities. In fact, in the experience of the author's investigations, the quantities of these three sweetening substances fluctuate considerably not alone in the root, but more particularly in the extracts. It seems quite probable that the glycyrrhizin undergoes changes in the course of manufacture, and it may therefore be assumed that these various bodies, in some as yet unexplained way, are transformed, the one into the other. The author gives explicit directions for determining the three varieties of sugar, by a method which is based upon their respective reactions with Fehling's solution, and may be outlined as follows:

1. *Glucoses*, by allowing the original solution (obtained by percolation or solution) to remain in contact with Fehling's Solution, in the cold, during 15 hours, then collecting, and weighing the cuprous oxide formed.

2. *Saccharose*, by boiling the filtrate obtained from (1), for a short time, collecting and weighing the cuprous oxide.

3. *Glycyrrhizin*, by prolonged boiling of the filtrate from (2) and estimating its quantity on the basis of the glucuronic acid indicated by the further reduction of Fehling's solution.

Of the two sugars, saccharose is in preponderance. But that certain changes occur in the sweet principles of licorice root during its manufacture into extracts is evident from the fact that, although the average yield of extract is 30% and the glycyrrhizin content in the root fluctuates between 6.49 and 8.15%, the latter fluctuates between 9.85 and 23.9% in the extracts yielded in the proportions mentioned.—Arch. d. Pharm. 249 (1911), No. 2, 144-160.

Cinnamomum Burmanni, Blume: *Yield and Properties of Oil from the Bark*.—Two lots of cinnamon bark have been received by Schimmel & Co., the one from the island of Celebes, the other from the island of Timor, which when anatomically examined by Dr.

Giessler proved to be identical, the parent-plant of both, according to this authority, being *Cinnamomum Burmanni*, Blume (C. Kiamis, Nees). This material yielded on distillation 0.5% of brownish-yellow oil with an aroma resembling that of Ceylon cinnamon oil, being d_{15}° , 1.0198; n_D^{15} , 1.58282; soluble in 0.8 vol. and more of 80% alcohol, but giving no clear solution with 10 vols. of 70% alcohol. The cinnamic aldehyde content, as determined with neutral sodium sulphite, was 77%; with bisulphite it showed 80%, but this is considered untrustworthy. The phenol content was approximately 11%.—Schimmel's Rep., Oct., 1911, 106.

Blaud Pills: Commercial Composition.—Albert E. Parkes and John D. Roberts communicate the results of examination of a large number of commercial samples of Blaud Pills, with special reference to their conformity to the B. P. formula in the composition of the pill mass, and the character of their coating. They found the pill mass to differ considerably from the official formula in many cases. Many of the samples were evidently made from ferrous carbonate, and the precipitate, without washing, made up into pills. Some of the samples were also deficient in iron. Most of the pills were the so-called "Pearl-coated" variety, for which purpose steatite (magnesium silicate) is principally used. There is evidence, also, that in some cases steatite is added to the pill mass itself. The authors regard the use of siliceous matter as being reprehensible, and quite unnecessary as an excipient. When such pills are allowed to disintegrate in water or dilute acid, the coating, under the microscope, has the appearance of transparent, sharp, angular particles, resembling finely-ground glass, and the ingestion of such siliceous matter by persons in delicate health must be attended with grave risks.—Pharm. Jour. and Pharmacist, Sept. 2, 1911, 320.

Extract of Malt: Valuation.—Dr. E. Seel discusses the demands that should be made in order to properly determine the value of malt extracts, which are usually confined to the physical characters of the preparation, such as color, consistence, odor and taste. The color depending on the kind of malt used for their preparation, these extracts are differentiated as light and dark in accordance with the color of the malt employed; but this

is not a safe criterion, since the color of the malt employed is liable to vary also according to the method and care in manufacture. The consistence of a properly-made extract of malt should be thick syrupy, depending on a content of about 25% of water, and the odor should be agreeably aromatic, malt-like. The merely physical characters are, however, liable to be misleading, and must be substantiated by a knowledge of the chemical character of the preparation. It may be of good consistence and yet be deficient in maltose (of which it should contain about 55%) with corresponding excess of dextrin, while diastase, nitrogenous bodies (particularly albuminoids) and mineral substances are important constituents which must be taken into account. Of the nitrogenous bodies in malt extracts the albumoses and the phosphorus containing nucleo-proteids, which are rendered soluble by the peptases of the malt, are the most important constituents on account of their ready assimilability. These should be present to the amount of from 4 to 6%. The acid contents, mainly lactic acid, should be insignificant (only a few pro mille). Of the mineral constituents, the readily assimilable phosphorus and iron compounds are also of therapeutic importance, and should not be neglected in a chemical valuation of malt preparations.—Pharm. Ztg. LVI (1911), No. 27, 273; from Med. Klin., 1911, No. 12.

Honey: Rapidity of Inversion of Cane-Sugar by Bees.—A. Korndoerfer observes that the nectar of flowers consists principally of cane-sugar, which when it is collected by bees and placed in their honey bags, undergoes inversion and is then deposited in the cells of the comb. To study this change more exactly, the author placed two colonies of bees, in autumn, into empty combs and supplied them with a 50% solution of cane-sugar. After half an hour sufficient had been taken by the bees to be extracted from the comb and examined; it was then found to contain 42 to 44% of invert sugar, showing that in passing once through the honey bags four-fifths of it had been inverted. Observation showed that bees took two minutes to fill their honey bags and an equal time to empty them into the cell, and this large amount of chemical change occurs in that short time.—Apoth. Ztg. XXVI (1911), No 64, 659.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 173)

In the present installment a number of formulas, domestic and foreign, are given for lubricating jellies or pastes to be used for surgical instruments, catheters, etc. There seems to be a wide range of opinion as to the proper amount of tragacanth, and also of glycerin in this preparation.

The Chairman of the Committee on Recipe Book has made a number of experiments along these lines and finds that from 2.5 to 3 percent of tragacanth is required to form a jelly which is thick enough to be put up into collapsible tubes. This undoubtedly is the proper method of dispensing this lubricant, in order to preserve its sterility.

Inasmuch as there is quite a demand for such a preparation, I believe the pharmaceutical profession should have a reliable formula for same, so each pharmacist can prepare it himself.

Comments and criticisms are invited.

Respectfully submitted,

OTTO RAUBENHEIMER, Chairman.



(For Abbreviations, see February, Page 169.)

No. 23.

PARENOL LIQUIDUM.

Liquid Parenol.

B. P. Cx.

Liquid Petrolatum	70 Cc.
White Wax	5 Gm.
Distilled Water, a sufficient quantity	_____
To make	100 Cc.

Melt the Wax in the Liquid Paraffin, pour the mixture into a warm mortar, and gradually add the Distilled Water, previously warmed.

This is a *neutral* liniment which is readily absorbed by the skin and causes no irritation.

It does not become rancid and besides being useful in the treatment of skin diseases and as a vehicle for injections, it is also a lubricant for catheters, etc.

This emulsion was originated by John Humphrey, Secretary of the Pharmaceutical Society of Great Britain.

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No. 24.

OLEUM LUBRICANS.

*Lubricating or Catheter Oil. Lund's Oil.
Modified Lund's Oil.*

B. P. Cx.

Oleum Carbolicum—Carbolic Oil.

P. J. F.

Phenol	5 Gm.
Castor Oil	20 Cc.
Expressed Oil of Almond, a sufficient quantity	_____
To make	100 Cc.

Dissolve the Phenol in the mixed Oils. This oil is used to lubricate catheters. Pasta Lubricans and also Glyceritum Lubricans, formulas for which follow, are used for the same purpose, and are sometimes preferred, as they can be removed by water and do not attack the material of which the catheter is composed.

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No. 25.

PASTA LUBRICANS.

*Lubricant Paste.**Catheter Paste. Kraus' Catheter Lubricant.*

B. P. Cx.

Phenol	3 Gm.
Glycerin	10 Cc.
Tragacanth	2.5 Gm.
Distilled Water, a sufficient quantity	_____
To make	100 Cc.

Dissolve the Phenol in 80 Cc. of Water; then mix the Glycerin with the Tragacanth, add the aqueous solution gradually with constant trituration, and make up the required volume by the addition of Distilled Water.

This paste is used as an antiseptic lubricant for catheters.

This is the original formula for a catheter or lubricant paste. It was originated by Dr.

Oscar Kraus of Carlsbad, Bohemia. As is to be expected the 2.5 percent of tragacanth produces a rather thick paste. O. R.

<>

No. 26.

GLYCERITUM LUBRICANS.

Glyceritum Tragacanthae Compositus.

*Lubricant Glycerite. Compound Glycerite of
Tragacanth.*

Tragacanth	3 Gm.
Alcohol	8 Cc.
Distilled Water	120 Cc.
Phenol, liquefied	4 Cc.
Glycerin, a sufficient quantity	_____

To make 200 Gm.

Agitate the powdered Tragacanth in a bottle with the alcohol, add the Distilled Water and set aside over night. Then add the Liquefied Phenol and sufficient Glycerin to make 200 Gm., which by volume is about 180 Cc. If necessary, sterilize.

Raubenheimer, Am. D., 1912, 312.

Note: This preparation has the consistence of a thick liquid. When intended for collapsible tubes, it should be made into a paste by increasing the amount of Tragacanth to 5 Gm.

The collapsible tubes have the advantage of neatness and also of preventing waste and keeping the jelly sterile.

The Phenol can be replaced by Solution of Formaldehyde, 0.2 Cc. O. R.

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No. 27.

LUBRICATING JELLY.

Tragacanth, whole	3 Gm.
Glycerin	25 Cc.
Phenol	1.5 Gm.
Distilled Water, a sufficient quantity	_____
To make	300 Cc.

The Tragacanth is broken in small pieces, put into a wide-mouth bottle, the other ingredients are added and the bottle frequently shaken.

This preparation is used in the German Hospital, Philadelphia.

Submitted by J. K. Thum.

No. 28.

KATHETER PURINE.

Dr. Melzer's Formula.

Hager E. B. 401.

Tragacanth	3	Gm.
Distilled Water	100	Gm.
Glycerin	20	Gm.
Mercuric Oxycyanide	0.246	Gm.



No. 29.

*Formula of Dr. Arth. Strauss, Barmen.
Therap. Monatsh.*

Tragacanth	1.6	Gm.
Distilled Water	50	Gm.
Mercuric Oxycyanide	0.1	Gm.
Glycerin, a sufficient quantity		

To make 100 Gm.

Triturate the powdered Tragacanth with the Distilled Water, add the Glycerin and then sterilize. After sterilization, add the Mercuric Oxycyanide.



No. 30.

ANTISEPTIC LUBRICANT.

Tragacanth	30	Gm.
Boric Acid	15	Gm.
Solution of Formaldehyde....	4	Cc.
Oil of Gaultheria.....	5	drops
Oil of Rose Geranium.....	3	drops
Alcohol	120	Cc.
Water	720	Cc.

Dissolve the Tragacanth in the Water in which the Boric Acid has previously been dissolved. Then add the solution of the Oils in the Alcohol slowly to the mucilage, shaking after each addition. Lastly, add the Formaldehyde.

This preparation is non-greasy, non-irritating, smooth and of perfect consistency. It is used in the Pennsylvania Hospital, Philadelphia, to lubricate surgical instruments, catheters, sounds and also the hands to facilitate the putting on and removal of rubber gloves. —John T. Harbold, Proc. A. Ph. A., Vol. 53, 136.

COMMITTEE ON NATIONAL FORMULARY.

The following are the proposed new formulas for Granular Effervescent Salts that have been suggested for inclusion in the forthcoming edition of the National Formulary. The Committee is desirous of having them thoroughly tried by pharmacists in different sections of the country so as to avoid, as much as possible, unfavorable comment after the final publication of the book. Comments and criticisms based on practical experiences will be welcome. All communications should be addressed to the Chairman of the Committee,

PROF. C. LEWIS DIEHL,

932 Cherokee Road, Louisville, Ky.,

who will submit the comments to the subcommittee having the matter in charge.

GENERAL FORMULA FOR GRANULAR EFFERVESCENT SALTS.

The citric acid directed in the formulas should be in clear, uneffloresced crystals and be finely powdered just before using. All other ingredients should be well dried at a temperature not exceeding 50° C., until they cease to lose weight and then finely powdered and passed through a No. 60 sieve. As atmospheric dampness, if present, will be absorbed by the finished granules and destroy the effervescent character of the salt, it is important that these preparations be made in a dry atmosphere.

DIRECTIONS FOR GRANULATING IN AN OVEN.

Having prepared the Citric Acid and the other ingredients of the formula, as directed above, intimately mix the powders, without trituration, adding the Citric Acid last, and spread the resulting product evenly, about 9.5 mm. (3/8 inch) thick, on a sheet of paper on a canvas tray, glass plate or shallow porcelain or enameled dish, and place it in an oven, heated to a temperature between 95° and 105° C. Allow the powder to remain in the oven, without stirring, until it has become moist and acquired the proper consistency, about that of dough, then immediately force the mass through a No. 6, tinned-iron sieve and dry the granules at a temperature not exceeding 50° C. When dry, again pass the granular powder through a No. 6, tinned-iron sieve, transfer it to dry bottles or containers and hermetically seal them.

DIRECTIONS FOR GRANULATING ON A WATER-BATH.

If a small quantity of the Salt is to be prepared, say 100 Gm., the mixed powders may be transferred to a covered dish on a water-bath or to a double boiler, heated by water actively boiling, the inner dish being actually in contact with the water, and the resulting pasty mass stirred until dry. The dry granules should be immediately passed through a No. 6 tinned-iron sieve and transferred to a dry container, which should then be hermetically sealed.

GRANULAR EFFERVESCENT ARTIFICIAL CARLSBAD SALT.

Citric Acid	250 Gm.
Sodium Bicarbonate	300 Gm.
Carlsbad Salt, Artificial.....	266 Gm.
Tartaric Acid	157 Gm.
Sodium Bicarbonate	100 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL KISSINGEN SALT.

Citric Acid	250 Gm.
Sodium Bicarbonate	300 Gm.
Kissingen Salt, Artificial.....	400 Gm.
Tartaric Acid	94 Gm.
Sodium Bicarbonate	106 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL VICHY SALT.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Vichy Salt, Artificial.....	250.0 Gm.
Tartaric Acid	164.5 Gm.
Sodium Bicarbonate	185.5 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL VICHY SALT WITH LITHIUM.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Vichy Salt, Artificial.....	250.0 Gm.
Lithium Citrate	83.3 Gm.
Tartaric Acid	125.35 Gm.
Sodium Bicarbonate	141.35 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

Note: The Lithium Citrate should be dried on a water-bath until anhydrous before adding it to the mixture.

GRANULAR EFFERVESCENT POTASSIUM BROMIDE.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Potassium Bromide	166.66 Gm.
Tartaric Acid	203.7 Gm.
Sodium Bicarbonate	229.7 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

ALKALINE GRANULAR EFFERVESCENT LITHIUM, POTASSIUM AND CAFFEINE.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Caffeine	8.33 Gm.
Sodium Bicarbonate	83.33 Gm.
Potassium Bicarbonate	83.33 Gm.
Lithium Carbonate	41.66 Gm.
Tartaric Acid	180.17 Gm.
Sodium Bicarbonate	203.18 Gm.

To yield about.....1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

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REPORT OF COMMITTEE ON DRUG MARKET, AUGUST, 1911.*

There continues to be marked improvement in the character of drugs and chemicals. Some reports would not indicate this, because the authorities naturally endeavor to secure samples that they believe to differ from the standard and in many cases publish as adulterations deficiencies in strength and differences in the products purchased from the artificial standard they may create.

To illustrate: Out of 931 samples purchased by one Board, about 24 per cent were pronounced as adulterated or varying from legal standards. This number included Liniment of Camphor seven samples, containing from 20 per cent to 66 per cent of the pharmacopœial amount of camphor. Seven samples of Spirit of Peppermint containing from 15 per cent to 80 per cent required amount of oil. Two of Tinct. of Iodine containing 50 per cent and 71 per cent of standard quantity of iodine. Five of Spirit of Lemon, two of which did not contain oil of lemon, and three much below standard. Nine of Spirit of Anise containing from a trace to 75 per cent of oil.

*Presented at the Fifty-ninth Annual Convention.

Of these, five samples examined by an outside chemist failed to give concordant results.

The comparison is as follows:

	Board of Health	Outside chemist
Spirit of Anise 1	56%	59.5%
2	63%	89.6%
3	58%	63.5%
4	48%	71.4%
5	42%	63.5%

It has been suggested by one member of the Committee that the chemists doing this work were prejudiced, one in favor of low results, the other in favor of high results. The high results were reported by a chemist connected with one of our leading schools, with no interest in the case whatsoever. The results were by refractometer readings. The No. 4 lot reading 71.4 per cent was made 73.8 by the separation method. If any explanation is to be sought it might be found in the unintentional mixing of samples.

Several cases were based on variation of Tinct. of Arnica in extractive, although there is no official standard for extractive in Arnica flowers. Such a course seems to be questionable, for it is well known that drugs bearing the same name have a wide divergence in amount of extractive, yielded by different samples, obtained from different sources, grown under different conditions. While we do not believe the range is a wide one in the case of arnica flowers, it is sometimes 100 per cent in other drugs. Then undoubtedly there is as great a variation in the character of the extractive obtained from different lots of the same drug. Observers of experience are aware of the great variation in the alkaloidal drugs grown in different seasons under varying climatic conditions and have noted that the alkaloidal contents bear no relation to percentage of extractive in the alkaloidal drug.

In the case of Tinct. of Arnica, the standard was an artificial one. It was obtained, we understand, by the Board Chemist percolating a sample of flowers purchased in the open market and using the extractive per cent of this product as a standard. He should have obtained many lots of flowers from different sources and made many lots of tincture under different temperature conditions and then adapted the range of results for a standard of comparison, instead of using a single percolate or the average of any number of percolates.

The range in extractive in tinctures prepared from drugs bearing the same name is very wide and might hint at improper percolation, but we would have to examine the drug used to assure ourselves of this. J. W. Pollard of the Mass. College of Pharmacy, found the range in extractive in ten samples of Tinct. of Belladonna, obtained from ten retail drug stores, to be from 1.05 per cent to 3.76 per cent, and the alcohol contents to range from 37.5 per cent to 47.5 per cent. Ten samples of Tinct. Hyoscyamus gave extractive 1.04 per cent to 4.27 per cent, and alcohol 23.9 per cent to 40.3 per cent.

Ten samples of Tinct. Digitalis gave extractive 1.08 per cent to 3.45 per cent, alcohol 21.6 per cent to 40 per cent. Ten samples of Tinct. Gentian Compound gave extractive 1.08 per cent to 5.01 per cent, alcohol 42.6 per cent to 56.4 per cent. Of the forty druggists, measured by the highest standards, thirty-six would be condemned as selling an adulterated product. In the case of Tinct. Belladonna and Tinct. Hyoscyamus we have an official alkaloidal standard, and the extractive standard would not stand in law. Assuming that these tinctures were standard in alkaloid, the extractive variation is remarkably extreme.

Too much care cannot be exercised in arriving at conclusions. A sample of Elixir Glycerophosphates was found to contain phosphate. The product was cloudy. It cleared with a small amount of hydrochloric acid and again clouded on adding ammonia. Another package from the same lot was bright and clear and gave no indication of phosphate. A portion in a test tube exposed a brief time to the vapor of a water bath became opaque. A few drops of acid cleared it and ammonia reprecipitated it. Investigation showed that the original package complained of had been exposed to a high temperature. If a publication is to be used as a standard by which men are to be condemned as delinquents, that standard should be as nearly above reproach as possible and not glaringly faulty. The N. F. offers a formula for Sol. Albuminate of Iron and a propaganda has urged physicians to prescribe it in preference to proprietary products. One pharmacist finds his N. F. formula calling for 40 G. of *fresh* Egg Albumen and 200 Cc. of solution of oxychloride of iron for 1000 Cc. and claiming that the product contains 0.026 of iron in 4 Cc.

Another having a revised edition with a formula calling for 40 G. of dry Egg Albumen, about twelve times as much as called for by the first formula, and 130 Cc. sol. oxychloride of iron, only 13-20 of the amount in the first formula, is told that it, too, contains in 4 Cc. 0.026 of iron. The Health Board Chemist who accepts this statement without verification, condemns every lot made by the formula.

Assuming the calculated standard for N. F. sol. of oxychloride of iron, the first formula would give 0.029 iron in 4 Cc., and the last 0.0188 iron to 4 Cc. Incidentally, the criticisms of different physicians, who prescribed this preparation, are interesting, and examination of products complained of is instructive. Many samples gelatinized on standing a short time. The alcohol contents varied 100 per cent, ranging from 5 per cent to 10 per cent. Iron varied from 0.015 to 0.040. One used caustic potassa instead of caustic soda. The variation in alkalinity is very marked. Correspondence with some leading pharmacists brings the acknowledgment that they do not make the product by the N. F. strictly, but use modifications of their own which they find necessary, yet they do not

hesitate to put the product out on propaganda prescriptions.

It is gratifying to note that in cases brought to court under the various Food and Drug Laws, the courts are taking the view that in cases involving matters of opinion competent testimony must prove beyond doubt the accuracy of the prosecution's opinion. Many of our officials entrusted with large powers under the laws are apt to consider that their individual opinion is the law, instead of the mere dictum of an individual. These laws are criminal statutes, and great care is necessary so as to prevent injustice being done. The defendant is just as much entitled to an opinion as the prosecution, and executive officers must understand that their opinion is not necessarily final.

Dr. Rusby's suggestion that facilities be furnished at importing points for the sorting or garbling of crude drugs, etc., is an excellent one, and the Association should urge the treasury department to furnish such facilities at an early date, so as to avoid loss to importers by rejection of drugs on technical grounds.

We have reached a time when we can establish with fair accuracy the fact that numerous drugs are therapeutically inert. While this is not properly within the sphere of pharmacists, the neglect of the subject of *materia medica* in our medical schools has forced the study upon the pharmacist. Would it not be well for the Association to prepare a list of drugs which are still used by physicians, but which we know to be of no value? The subject is almost of importance enough to warrant the appointment of a Committee on Inert Drugs.

One member of the Committee objects to the suggestion on the plea that the pharmacist's opinion is of little value. The A. M. A. says that *Echinacea* is inert, but many physicians find it of value. How can the pharmacist decide except upon the testimony of physicians of his acquaintance, while their opinion may be offset by that of other men quite as able.

We again urge chemical and wholesale drug houses to drop, as far as possible, the use of the misleading term "C. P. chemicals," adopting in lieu thereof the terms "U. S. P." or "Medicinally Pure."

Co-operative work on the assay of crude drugs and galenical preparations shows that considerable variation is to be expected in the results of different analysts. In view of the fact that U. S. P. is a legal standard, we would impress upon the Committee of Revision the importance of not adopting assay processes in the new pharmacopœia, unless they have been thoroughly tried out and proved to give uniform results in the hands of different workers. It is well to pay attention to the physical characters of crude drugs and place intelligent limits on the quality and variety to be used, rather than to depend alone upon a certain standard based on a more or less inaccurate assay process.

Attention is called to the practice of certain manufacturers of offering chemicals, the per-

centage purity of which is given "by difference." The chief impurities are determined quantitatively and the chemical itself "by difference." The results are often highly misleading.

Undoubtedly we shall see great improvement in the next pharmacopœia. The valuable Digest of Comments issued by the Hygienic Laboratory under the editorship of Dr. Motter and Mr. Wilbert, and the wide range of inexperience in the Drug Laboratory with present processes, should place in the hands of the Committee of Revision more practical data than has hitherto been available.

The suggestion that has been made to issue yearly bulletins of corrections and improvements would seem to be a good one.

ACACIA. The powdered gum will almost always reduce an alkaline copper tartrate solution. It should not be rejected on this ground alone. E. H. GANE.

ACETIC ACID. Product labeled pure, contained trace of copper and had bad pyroligneous odor. E. L. PATCH.

ACID BENZOIC. The test for chlorine compounds is not reliable for distinguishing between the natural and artificial. Some samples of artificial acid show up better by this test than the natural. This means that artificial acid is often offered as natural from benzoin. W. L. SCOVILLE.

ACID BORIC. Two bbls. contained excess of sulphate and calcium. E. L. PATCH.

ACID LACTIC. The acid offered for technical purposes, which is often very impure, sometimes gets into the drug market. The strength is right, but the acid is dark colored and contains much foreign matter. W. L. SCOVILLE.

ACID OLEIC PURIFIED. One shipment contained iron and was very dark colored. E. L. PATCH.

ACID PHOSPHORIC. Fifteen samples tested 84.4 to 85 per cent. W. L. SCOVILLE.

ACID SALICYLIC. The use of natural acid from oil of birch is increasing. Its color is the distinguishing feature and is intentionally left dark. W. L. SCOVILLE.

ACID TANNIC. Crude acid containing traces of gums and resins is frequently offered. It is compact, heavy and usually dark in color. W. L. SCOVILLE.

ACID TARTARIC. Several lots testing well chemically were too dirty to use. Their color was bad and they made a very dirty solution. E. L. PATCH.

ACONITE ROOT. One lot of spongy root rejected. Assayed only 0.25 aconitine. E. H. GANE.

ALCOHOL—ETHYL, IN BBLs. New process alcohol made from sawdust by fermentation has appeared in the market. One sample tested 96.1 by specific gravity and had a good odor, but contained 6 per cent of methyl alcohol. The latter is formed in the process. W. L. SCOVILLE. "Commercial" alcohol is being generally supplied and used by the trade for medicinal preparations. Some of it is of

very bad odor and poor quality and trouble may result from use of this article unless the trade is more careful. E. H. GANE. Sample of sugar alcohol stood all U. S. P. tests, was practically odorless and was 94.41 per cent weight strength. E. L. PATCH.

ALOES MOKA. It is an amazing fact that American dealers and manufacturers have for years past permitted themselves to be supplied with this substance under the name of Socotrine Aloes. So general has the custom been that it has caused the greatest indignation for the Federal authorities to now reject the article when so called on the ground that it is misbranded. It is quite true that this article has been geographically classed with Socotrine Aloes, although this classification is not strictly correct. From every other point of view, it is entirely distinct and it is as inferior and objectionable as it is distinct. The substance is black and soft like thin tar, and is exceedingly disgusting in odor and taste. It contains a much larger amount of albuminous matter than official aloes. In fact, I should say that whereas Socotrine

APOMORPHINE HYDROCHLORIDE. The U. S. P. calls for the pure, crystalline salt. It is the custom of some manufacturers to always send the amorphous variety unless the crystalline is specified. Many druggists do not consult their pharmacopœia and dispense the amorphous, as it only costs one-fifth the price of the crystalline. Physicians have made many complaints as to difference in cost of prescriptions and radical difference in therapeutical action. Guinard states that the pure crystalline has a predominating stimulant action, while the amorphous is narcotic. A letter from Merck & Co. states that difference in action is not due to impurities in either preparation, but they are not advised as to the exact methods used by their laboratories in preparing the amorphous and crystalline salts. Dorvaults, L'Officine cautions the pharmacist against using any but the pure crystalline salt; others may contain a notable quantity of morphine. Messrs. P. W. R. state that the amorphous contains impurities which prevent crystallization. The yield of crystals is small.

The two salts test as follows:

	CRYSTALLINE.	AMORPHOUS.
To the eye.....	White crystalline powder.	Buff colored powder.
To the microscope.....	Colorless crystals.	Yellowish particles, vitreous in appearance, with smaller adhering whitish particles.
Ignited	Smoky flame, no ash.	Smoky flame, no ash.
Color of Aqueous Sol.....	Colorless.	Pale greenish.
Reaction	Neutral.	Very faint acid reaction.
0.100 in 15 Cc. water plus 0.5 Sod. Bicarb. washed out with chloroform, dried at 100° C. (theoretical yield 0.08799) ..	Gave 0.090 Gm.	Gave 0.059 Gm.
Titrated with N-10 Sulphuric Acid with cochineal indicator	Gave 0.07955 Gm.	Gave 0.0514 Gm.
Determination of HCl. (theory 0.012006)	0.0121203 Gm.	0.0115776 Gm.
Used the aqueous liquid from which alkaloid had been washed. E. L. PATCH.		

aloes is considered the best variety, Moka aloes is about the poorest. The rejection by our authorities of this spurious article has met with vehement protests from the European shippers, but it is undoubtedly to be continued, and it would be well for all concerned to become advised of the facts without delay, so as to accommodate themselves to the new conditions. H. H. RUSBY.

AMMONIUM CARBONATE. Usually runs low. Several lots were below 90 per cent pure—84.8 per cent to 88.24 per cent. W. L. SCOVILLE.

Tested 92 per cent, 94.5 per cent, 92 per cent, 94 per cent, 96 per cent. E. L. PATCH.

APIOL. Adulterated with castor oil, glycerol, gurjun balsam, and a residue from the solvent used in extracting the apiol. Apiols may be green, yellow or white. Are completely soluble in 90 per cent alcohol, ether, chloroform, acetone, benzene and glacial acetic acid. Should preserve their fluidity when cooled to 5°. PHARM. ERA.

ASAFOETIDA. Thirty-eight lots varied from 21.6 per cent to 61.2 per cent soluble in alcohol. One lot gave over 50 per cent of ash and several lots above 40 per cent. W. L. SCOVILLE. The high percentage of impurity in the commercial article renders necessary a process of purification. One lot of poor grade testing only 40 per cent soluble in alcohol with over 30 per cent of ash, was purified and the finished product showed, ash 2.17 per cent, alcohol soluble matter 73.71 per cent. E. H. GANE. The difficulties of the year in relation to Asafoetida have been much greater than those connected with any other article. The difficulty originates in the fact that is not known what properties should constitute a standard for Asafoetida. With no standard in existence, how can one be enforced? We know that two or more plants, but no one knows how many, yield gum resins for which the name Asafoetida has always been accepted, no matter whether these substances were supplied separately or in a mixture. We also know that gum resins

to which the name does not belong are often mixed with Asafoetida and that they take the odor and taste of the latter. When we are able to pick out these pieces and determine them as ammoniac, olibanum and galbanum, as we have been doing, we are able to declare such an asafoetida as adulterated. When, on the other hand, some of the substances so picked out are unknown and have the asafoetida odor and taste, it is a matter of opinion as to whether they form a legitimate part of the asafoetida or not. With this situation we are frequently confronted and the very best of judges are sharply at variance in their opinions. The situation, moreover, is much worse than appears in this statement, as the dealers are not usually good judges nor careful examiners and they firmly and with sincerity claim the right to the goods, even when it is easy to demonstrate the presence of adulterants. Add to such cases the many in which the dealers know the article is adulterated, yet endeavor to get it through surreptitiously and it will be realized that there is trouble enough with Asafoetida. It is probable that most of the trouble comes from differences of opinion and it may be said that among foreign shippers the opinion is general, and even exists among high scientific authorities that the U. S. government is wrong and acts arbitrarily in its rejection of this article. It is not improbable that the U. S. authorities have erred in some cases. This series of difficulties must continue until some properly qualified person shall visit the Asafoetida region and make a thorough study of all questions pertaining to it, obtaining typical material for which a standard description can be drawn up. The pharmacopœia claims the authority to fix our standards, therefore upon it rests a responsibility for being correct in regard to them. One who assumes authority, but repudiates responsibility for it, must be condemned. H. H. RUSBY.

- 1 Powd. 41 % soluble in alcohol 36.5% ash
- 2 Powd. 53 % soluble in alcohol 26.5% ash
- 3 Powd. 66 % soluble in alcohol 22.5% ash
- 4 Powd. 66.5% soluble in alcohol 23.5% ash
- 5 Powd. 37 % soluble in alcohol 40 % ash

1 Gum 55 per cent soluble in alcohol, 26 per cent insoluble, Ash 5 per cent, 19 per cent moisture and volatile matter.

2 Gum 32.5 per cent soluble in alcohol, 53 per cent insoluble, Ash 5 per cent, 14.5 per cent moisture and volatile matter.

3 Gum 19 per cent soluble in alcohol, 71 per cent insoluble, Ash 20.8 per cent, 9.5 per cent moisture and volatile matter. E. L. PATCH. Asafoetida yields 14.56 to 15.90 per cent volatile oil, generally some less in the tears than in the mass, but that from the tears is more pungent, containing more sulphur, often over 10 per cent, while the oil from the mass has about 2 per cent. DRUG TOPICS.

ASPIRIN. Ten samples melted at 130° to 136° C. W. L. SCOVILLE.

BALSAM PERU. In regard to Balsam Peru, an entirely different situation exists. Notwithstanding that original research is needed to perfect our knowledge, yet everyone knows what the article is, and there is no very great difficulty in fixing a fairly satisfactory standard for it. The impropriety here is in the marketing of a purely fictitious manufactured product, an imitation of the natural one. Not only is the article technically spurious and readily distinguished by physical and chemical tests, but its source is such as to render its use as a substitute for Balsam Peru distinctly injurious or even dangerous. It may be asked how such an article can be admitted under the law. This is secured by the use of the word "synthetic" prefixed to the title. Of course, this does not justify its admission, for such use of the word is not permissible. An article like quinine or vanillin, of definite chemical composition, may be made synthetically, if exactly the same in chemical composition as the genuine, but an article that admits of no chemical definition, but only of one that states its source (as a balsam obtained from *Toluidra Pereiræ*) is not that substance, either synthetic or otherwise, unless derived from said source. Another condition out of which grows great difficulty, is the improper use of the phrase "for technical use." Articles which do not conform to the standard may be imported "for technical use only," but this term is greatly abused in practice, medicinal and pharmaceutical uses being often included under the term. There is the greatest need of some carefully studied provision of the pharmacopœia for specifying just when and how articles differing from the standard may be admitted for technical use. H. H. RUSBY.

BENZOIN. Benzoin runs fairly even 70.8 per cent to 87.5 per cent soluble in alcohol. E. H. GANE. One sample contained 11.1 per cent ash and only 72 per cent alcohol soluble. The impurities were sand and twigs from the tree. W. L. SCOVILLE. One of the greatest difficulties with which the government has to contend in its treatment of importations of this article is the failure of the pharmacopœia to specify the allowable amounts of the different kinds of impurity. It is a peculiar and strange fact that as a general rule those lots containing the larger amounts of bark, wood and other impurities of that class, have the strongest and finest odor, while those from which there has apparently been an attempt to exclude them, are apparently less active. This may be due to the mechanical state of the mass, which leads to a greater freeing of the odorous constituents in the former case, or there may be an actual as well as an apparent superiority. This whole matter requires investigation. In any case, it is up to the pharmacopœia to more perfectly fix the restrictions for this drug. H. H. RUSBY.

BELLADONNA LEAF. One bale rejected owing to age and mildew, assayed 0.23 per

cent alkaloids. E. H. GANE. There seem to be a strong general trend in favor of authorizing the substitution of the herb for the leaves. Should this proposition carry with the Pharmacopœia Committee, without any restrictions as to size of stems, considerable trouble will be prepared for analysts. In spite of all statements to the contrary, large stems are very deficient in alkaloidal percentage. In assaying a drug containing such stems it will be almost impossible to get a representative mixture of stems and leaves as to proportion, unless a very large sample is taken and specially powdered so as to be sure that the entire tissue is represented in such powder. H. H. RUSBY. 0.35 per cent, 0.37 per cent, 0.26 per cent, 0.37, 0.4. These two bales had about 75 pounds of stems in their interiors. Removed both bales, mixed and ground, assayed 0.27 per cent. E. L. PATCH. Thirteen bales contained an excess of stems. Leaf portion assayed 0.298 per cent, and the stem portion 0.175. C. E. VANDERKLEED.

BISMUTH SALICYLATE. Nearly always contains some Subnitrate. REP. DE PHARM.

BUCHU. The demand for Buchu U. S. P. has exceeded the supply and the price has been excessively high. This has stimulated the offering of Long Buchu, which is not recognized by the pharmacopœia, to such an extent that during the second half of the year, supplies of this substitute have probably exceeded the genuine. Such substitution is not necessarily fraudulent, as there is a large demand for long buchu by those who prefer it to the official variety. It may well be that the reason that it is not generally preferred is that the great majority of prescribers are either ignorant or utterly unconcerned as to the distinctions and differences between the two. In any case, the therapeutic differences are insignificant and the deletion of Long Buchu was undoubtedly an error. Its restoration to official recognition would greatly relieve the commercial situation without detriment, even if not with positive advantage to therapeutics. While it is true that some Long Buchu is used by preference, almost all of it goes into consumption as Buchu, its supply being thus fraudulent. In all cases the Federal authorities deny it admission as "Buchu," but by changing the mark to "Long Buchu," the inspector may allow it to enter. In practically all cases the name "Buchu" is restored before the article enters consumption. State and city administrations, so far as I know, have in no instance sought to check this illegal procedure. It is the custom to mix a larger quantity of stems with Long Buchu than with Short Buchu; 8 or 10 per cent is scarcely objectionable, but 10 to 15 per cent is common, and 15 to 25 per cent not infrequent. In the case of Long Buchu, the introduction of as large an amount of stem as could possibly be palmed off has been the rule. This is instructive, as indicating the greater readiness to adulterate an article which is deprived of the protection of the

pharmacopœia. In many cases the stems have been chopped up to resemble coarse sand in appearance, before being added, and in some cases, coarse sand has also been added with the stems. Here again the drug is excluded from importation under the mere name, but the strict wording of the law compels its admission if the words "With Stems" are added, although these qualifying words are uniformly eliminated before the drug goes to the consumer, and the states are culpably indifferent to the fraud. Fifty per cent of stems (more has frequently been found) means a reduction of nearly one-half in the medicinal value of a preparation made from the drug. In one instance the foreign shipper powdered the Buchu before shipping it, with the evident intention of making it impossible to determine the presence of the stems in it. I reported 23 per cent. The importer was granted permission to sift out the stems and obtained about 27 per cent. The admission of Long Buchu to the pharmacopœia, and its strict regulation, are loudly called for by the conditions described. H. H. RUSBY.

CALCIUM CARBONATE. Most lots showed traces of iron and aluminum. One lot was off color, very dirty, showed presence of iron, aluminum, phosphates and dirt. E. L. PATCH. from 4 per cent to 15 per cent camphor. M. S. B.

SPIRIT CAMPHOR. From 7 per cent to 8.2 per cent camphor. M. S. B.

CANNABIS INDICA. This drug continues of great interest. Supplies have continued scarce, and prices high, during the entire year. This has stimulated the importation of large amounts of the drug which cannot be regarded as the U. S. P. article. Many of them contain far too large a percentage of seeds. Others are not produced in India at all, but in Africa mostly, and are not cured in the same manner and form as the Indian drug. Owing to the claim, put forward by high authority, that substances are therapeutically equal to the official article, it has been very difficult indeed for the authorities to succeed in maintaining the standard. Large quantities of this drug which have been received have been damaged in curing, having heated in the process of drying so as to turn brown or even black, and in some instances to be absolutely rotten. H. H. RUSBY. Ether soluble resin, 12.1 per cent, 11.1 per cent. E. L. PATCH.

CANNABINE TANNATE MERCK. Brownish powder, odor of cannabis indica. Taste slightly astringent. Not entirely soluble in alcohol. Not soluble in water. Soluble in weak KOH. Solution giving a brownish color. Adding HCl in excess gives a yellowish liquid, adding test solution of FeCl₃ turns the liquid quite dark. With an excess of ammonia gives a blue black ppt. E. L. PATCH.

CANTHARIDES RUSSIAN. 0.4 per cent, 0.4 per cent, 0.4 per cent, 0.48 per cent, 0.44 per cent, 0.5 per cent. E. L. PATCH.

CARBON PAPERS. Nine blue papers showed arsenic varying from 1-250 grain to 2.15 grains per square yard. Two samples were arsenic free. One purple paper had 14 grains to the square yard, one had 1 grain and six were arsenic free. Five black papers showed 1-200 grain to the square yard and two none. One red paper gave 1-175 grain to square yard, one none. ERNEST O. COOK.

CARAMEL. Adulterated with Ammon. Carbonate and Sodium Carbonate. Sometimes contains 50 per cent sodium carbonate crystal. P. CARLES.

CARBONIS DETERGENS LIQUOR. Great variation is found in this preparation and physicians are frequently disturbed by it. Different formulas give the following:
Coal Tar Soap Bark Alcohol

40	20	70% to make 100
20	10	90% to make 100
16	20	33% to make 100
50	20	68% to make 100
20	20	45% to make 100
20	20	80% to make 100
20	10	95% to make 100

Two lots examined gave Alcohol 48.52 per cent and 48.88 per cent, Residue 2.9 per cent and 2.9 per cent. E. L. PATCH.

CHARCOAL. Imperfectly carbonized samples are of frequent occurrence. E. H. GANE.

CHERRY LAUREL WATER. Assays from 0.03 per cent to 0.1 per cent of Hydrocyanic acid. E. L. PATCH.

COCHINEAL. The "silver" variety is gradually disappearing and better grades are more easily obtainable. The "silver" variety had a high ash, the characteristic appearance being due to loading. Two samples of powdered purchased in the open market only yielded 3.24 per cent and 4.90 per cent of ash, where formerly 20 per cent to 30 per cent was common. E. H. GANE.

COLCHICUM SEED. One sample contained but 0.36 per cent Colchicine. E. H. GANE. One lot assayed 0.52 per cent. E. L. PATCH.

COLLODION. Two lots contained only 75 per cent of the official amount of soluble gun cotton. E. L. PATCH.

COLOCYNTH. Three lots contained ground seeds. H. H. RUSBY. Most of the product sold contains seed as well as pulp and prosecutions have been brought on this account. E. H. GANE.

(To be continued)

THE NUB OF THE QUESTION.

So long as a druggist wants to squeeze every last cent from his business he will keep his store open all night long and all day on the Sabbath. He will hide behind the stock excuse that drugs are needed by the sick at any and all hours. When he knows perfectly well that the legitimate sales of this charac-

ter after seven or eight o'clock in the evening won't pay the gas bill, and when he realizes thoroughly that the emergency wants of the sick are supplied by the physician from his case. If he is too honest to advance this argument, he will plead the sacred nature of Custom, and say that the public expects drug stores to be open when other shops are closed, shutting his eye to the fact that the public formerly expected the same thing of grocery stores, but quickly adapted itself to a changed situation when the grocers developed self-respect and refused any longer to make slaves of themselves.

Sometimes the druggist will frankly confess the truth and admit that he is after the soda, the candy, and the cigar business which comes to him in the evening and on Sunday. This is the nub of the question—the very heart of the whole matter. The druggist frankly wants to extract every last cent from the business—and, by the Eternal, he is going to do it! The indignant editorials on the subject, the association papers, the committee reports, the eloquent debates at meetings—these all slide off his back more easily than a duck sheds water. He listens calmly—and then does as he pleases.—*Bulletin of Pharmacy.*

THE CHARITY OF JUDGMENT.

"We do not need to judge nearly so much as we think we do. This is the age of snap judgments. The habit is greatly intensified by the sensational press. Twenty-four hours after a great murder there is a difficulty in getting enough men who have not already formulated a judgment, to try the case. These men, in most instances, have read and accepted the garbled, highly-colored newspaper account; they have to their own satisfaction discovered the murderer, practically tried him and—sentenced him. We hear readers state their decisions with all the force and absoluteness of one who has had the whole Book of Life made luminant and spread out before him. If there be one place in life, where the attitude of the agnostic is beautiful, it is this matter of judging others. It is the courage to say: "I don't know. I am waiting further evidence. I must hear both sides of the question. Till then I suspend all judgment." It is this suspended judgment that is the supreme form of charity."—*William George Jordan.*

Editorial Notes and Announcements

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All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

FREE WHILE THEY LAST.

As long as the supply lasts, complete sets of the Bulletin, 6 vols. (except Jan., 1910,) will be supplied to dues paid members who request them.

These on binding, which should cost not to exceed 60 cents per volume, will form a handsome and valuable addition to any pharmaceutical library. In the future complete sets of the Bulletin will be scarce and valuable, and those who want them should apply now.

Members will be expected to pay freight or express, which, however, will be only a small amount.

The General Secretary is also prepared to send dues paid members, without charge, reprints of Dr. S. S. Cohen's address on the *Relation of the Pharmacopoeia to the Practice of Medicine*, an admirable aid in propaganda work with physicians.



COMPLIMENTARY DINNER TO PRESIDENT GODDING.

The druggists of Boston and of Massachusetts tendered a complimentary dinner to President and Mrs. Godding, at the Hotel Vendome, Boston, Friday evening, February 20, at which they were made the recipients of a cut glass punch bowl, the presentation being made on behalf of the gathering by Mr. William C. Durkee.

C. Herbert Packard of East Boston, President of the Massachusetts College of Pharmacy, was toastmaster.

Brief addresses were made by J. Arthur Bean, representing the National Association of Retail Druggists; William H. Flint, President of the Massachusetts Board of Registration in Pharmacy; Fred L. Carter, Jr., President of the Boston Druggists' Association; A. C. Morey, representing the Boston Association of Retail Druggists, and Mrs. J. T. Waterhouse, President of Boston Chapter, Women's Organization of the National Association of Retail Druggists.

The musical program included songs by Mrs. W. H. Glover of Lawrence, James M. O'Brien of Roxbury, Miss Moshier of East

Boston and A. E. Orcott, and selections by an orchestra. The dinner was arranged by I. P. Gammon and C. Herbert Packard.

Among those present were: Mr. and Mrs. H. De Coster, Mr. and Mrs. C. A. Stover, Mr. and Mrs. C. F. Ripley, E. L. Patch, Mr. and Mrs. E. H. La Pierre, Mr. and Mrs. W. R. Acheson, Mr. and Mrs. I. P. Gammon, Mr. and Mrs. W. H. Glover, Mr. and Mrs. J. A. S. Woodrow, Mr. and Mrs. Turner, Mr. and Mrs. C. H. Davis, G. E. Coleman, Charles A. West, Dr. C. O. Thompson, W. H. Pierce, Mr. and Mrs. H. L. Emerson, John R. Sawyer, Mrs. F. J. Connolly, Mr. and Mrs. J. A. Bean, Mr. and Mrs. G. A. Kelly, Mr. and Mrs. W. C. Durkee, R. C. McGowan, A. W. Dowse, Mr. and Mrs. L. D. Drury, Mr. and Mrs. H. L. Bruce, D. Wolff, Mr. and Mrs. J. T. Waterhouse, Mr. and Mrs. F. L. Carter, Mr. and Mrs. W. S. Briery, Prof. J. O. Jordan, Mr. and Mrs. F. W. Connolly, T. E. Burns, E. C. Marshall, Mr. and Mrs. J. M. O'Brien, Mr. and Mrs. A. C. Morey, Dr. J. H. Perry, Mr. and Mrs. M. J. McIntye, L. Parent, W. H. Doherty, Col. John W. Low, Mr. and Mrs. F. M. Foster, Mr. and Mrs. L. W. Griffin, Mrs. Staples, W. Curtis Glover.



LEST YOU FORGET.

The SIXTIETH ANNUAL CONVENTION of the A. Ph. A. opens August 19, 1912, at Denver, Colorado, the Brown Palace Hotel being official headquarters. This will be one of the greatest conventions ever held by the Association, in a city located in close vicinity to some of the most interesting natural features on the Continent. The Denver people are making great preparations for the entertainment of their visitors. One of the items will probably be a day's excursion through and up the mountains. Those who attended the last convention at Denver remember the interesting trip to Silver Plume, over the famous Georgetown Loop. The excursion now planned will pass through a still more picturesque region.

You can attend this convention if you think so, and begin to plan for it now. It will afford the opportunity for a trip the memory of which will always remain with you, and at comparatively small expense, probably not more than the cost of a two weeks' trip to the seaside.

NON RECEIPT OF THE JOURNAL.

The disappointment of the member who does not receive his JOURNAL promptly is mild compared to the disappointment of the Editor who has gone to the trouble of preparing the publication for the sole purpose of having it distributed to subscribers.

Thus far the most common reason for non-delivery has been the failure of dues paid members to request that they be entered on the subscription list, as required by the postal regulations. Other reasons have been the changing of address without notifying the General Secretary, the difficulty of preparing an accurate mailing list from the records, while some failures are apparently chargeable to the natural perversity of material things.

It is believed, however, that the mailing list of those entitled to receive the JOURNAL is now fairly accurate, and that subscribers may expect prompt delivery in the future.

If a copy is not received when it should be, subscribers are requested to notify the Editor at once. A postal card will be sufficient.



COOPERATION OF LOCAL PHARMACEUTICAL SOCIETIES.

In many of the larger cities there are two or more local druggists' societies, as the local R. D. A., Academy of Pharmacy, A. Ph. A. Branch, etc., each separate in organization, but having many members in common.

Naturally in such a time-exacting business as pharmacy, it is desirable to reduce to a minimum the number of meetings which must be attended.

In the writer's opinion much can be accomplished in this direction by an affiliation of, or the formation of a working agreement between all of these local societies, with a corresponding saving of effort and increased efficiency, at the same time preserving the separate identity of each organization.

One method by which this can be effected is by having a common time and place for meetings, with either a division of the time between the different societies, or a joint program, either monthly or on alternate months.

As a consequence of their present separate existence it often happens that unless some matter of great importance is to be considered the attendance is small—one of the frequent entries in the secretary's record being "No quorum present."

By combining forces in the manner sug-

gested, the attendance is increased, a good program is assured, and the members of all of the local societies are brought into closer touch with each other. Questions of general business policy, matters of legislation, or other subjects upon which there is likely to be a difference of opinion, can be discussed and agreement reached, the results of which will react to the favor of the entire druggist community.

Once a year, or as much oftener as may be necessary, the several societies can hold separate meetings for the election of officers, and for the transaction of business pertaining strictly to their own organization.

No doubt experience would quickly enable the affiliating societies to develop improvements upon the plan suggested, and which would soon be adopted by societies in other cities.

Which druggist community will be the first to try out the plan?

Matters of General Interest

WILEY'S OWN STATEMENT ON RESIGNING.

On April 9, 1883, I took the oath of office and entered on the discharge of my duties as chief of the Bureau of Chemistry, in the Department of Agriculture.

For the past twenty-nine years I have endeavored to discharge these duties according to the dictates of my conscience, the knowledge at my command, and the obligations of my oath.

In retiring from this position after so many years of service it seems fitting that I should state briefly the causes which have led me to this step. Without going into detail respecting these causes, I desire to say that the fundamental one is that I believe I can find opportunity for better and more effective service to the work which is nearest my heart, namely, the pure food and drug propaganda, as a private citizen than I could any longer do in my late position.

In this action I do not intend in any way to reflect on the position which has been taken by my superior officers in regard to the

same problems. I accord to them the same right to act in accordance with their convictions, which I claim for myself.

After a quarter of a century of constant discussion and effort the bill regulating interstate and foreign commerce in foods and drugs was enacted into law. Almost from the very beginning of the enforcement of this act I discovered that my point of view in regard to it was fundamentally different from that of my superiors in office. For nearly six years there has been a growing feeling in my mind that these differences were irreconcilable and I have been conscious of an official environment which has been essentially inhospitable. I saw the fundamental principles of the Food and Drugs Act, as they appeared to me, one by one paralyzed or discredited.

It was the plain provision of the act and was fully understood at the time of the enactment, as stated in the law itself, that the Bureau of Chemistry was to examine all samples of suspected foods and drugs to determine whether they were adulterated or misbranded and that if this examination disclosed such facts the matter was to be referred to the courts for decision. Interest after interest, engaged in what the Bureau of Chemistry found to be the manufacture of misbranded or adulterated foods and drugs, made an appeal to escape appearing in court to defend their practices. Various methods were employed to secure this end, many of which were successful. I found that one by one the activities pertaining to the Bureau of Chemistry were restricted and various forms of manipulated food products were withdrawn from its consideration and either referred to other bodies not contemplated by the law or directly relieved from further control. A few of the instances of this kind are well known. Among these may be mentioned the manufacture of so-called whisky from alcohol, colors, and flavors; the addition to food products of benzoic acid and its salts, of sulphurous acid and its salts, of sulphate of copper, of saccharin and of alum; the manufacture of so-called wines from pomace, chemicals, and colors; the floating of oysters often in polluted waters for the purpose of making them look fatter and larger than they really are for the purposes of sale; the selling of moldy, fermented, decomposed and misbranded grains; the offering to the people of glucose under the name of "corn sirup," thus

*Reprinted from the *Journal of the American Medical Association*.

taking a name which rightfully belongs to another product made directly from Indian corn-stalks.

The official toleration and validation of such practices have restricted the activities of the Bureau of Chemistry to a very narrow field. As a result of these restrictions I have been instructed to refrain from stating in any public way my own opinion regarding the effect of these substances on health and this restriction has interfered with my academic freedom of speech on matters relating directly to the public welfare.

These restrictions culminated in the summer of 1911 with false charges of misconduct made against me by colleagues in the Department of Agriculture, which had it not been for the prompt interference on the part of the President of the United States, to whom I am profoundly grateful, would have led to my forcible separation from the public service. After the President of the United States and a committee of Congress, as a result of a searching investigation, had completely exonerated me from any wrong-doing in this matter, I naturally expected that those who had made these false charges against me would no longer be continued in a position which would make a repetition of such an action possible. The event, however, has not sustained my expectations in this matter. I was still left to come into daily contact with the men who secretly plotted my destruction.

I am now convinced that the freedom which belongs to every private American citizen can be used by me more fruitfully in rallying public opinion to the support of the cause of pure food and drugs than could the limited activity left to me in the position which I have just vacated. I propose to devote the remainder of my life, with such ability as I may have at my command and with such opportunities as may arise, to the promotion of the principles of civic righteousness and industrial integrity which underlie the Food and Drugs Act, in the hope that it may be administered in the interest of the people at large, instead of that of a comparatively few mercenary manufacturers and dealers. This hope is heightened by my belief that a great majority of manufacturers and dealers in foods and drugs are heartily in sympathy with the views I have held and that these views are endorsed by an overwhelming majority of the press and the citizens of the country.

H. W. WILEY.

N. A. R. D. ACTIVITIES.

CHARLES MYLERT CARR, Editor N. A. R. D. NOTES.

One of the important features of the work of the National Association of Retail Druggists during recent months has been that of looking after National legislation. The climax to the fight against Parcels Post came when the Post Office Appropriation bill was introduced and embodied a section which will inaugurate, unless eliminated from the bill, a full-fledged rural parcels post system, and create a commission to consider plans for the establishment later of a general parcels post. March 18th is the date set apart by the friends of the bill to write their Congressman and Senators, and the opponents of the measure at once decided to make use of the same date to send their protests to Washington. N. A. R. D. Notes of March 14th was devoted largely to this issue and contained an editorial appealing to all druggists to become active in this letter-writing campaign. Officers of affiliated associations were requested to devote sufficient time on March 18th to line up not only the drug trade of their respective communities, but all other retail mercantile interests as well, in the absence of other National associations securing the cooperation of their respective constituencies. In the language of Notes, "It is now or never," and by the time this page reaches the readers' eye, the battle of letters to our legislators at Washington will have been fought and the victory, we believe, will be on the side of the most letters.

THE RICHARDSON BILL.

The Richardson Bill designed to so amend the Pure Food and Drugs Act as to make misrepresentation of drug products including proprietary medicines dangerous and expensive, seems to be one of the "storm centers" of comment and discussion at Washington. The bill was introduced by Congressman Richardson for the purpose of carrying into effect President Taft's recommendation to Congress which followed the famous decision of the United States Supreme Court in the Johnson Cancer Cure Case. Congressman Richardson had also consulted Dr. Wiley and as "the wagon was going to the mill," it was decided to carry a full load. It is the apparent design of the bill to place the sale of all medicinal preparations containing toxic and habit-forming drugs under the jurisdic-

tion of the pharmacist constituting him, along with the physician, as the guardians of public health so far as the manufacture and sale of medicinal products are concerned.

The principle of the Richardson Bill was strongly endorsed by the N. A. R. D. Convention at Niagara Falls, and while the bill itself exhibits many inaccuracies and incongruities, necessitating a redrafting of the same, it will probably become a law with the backing of the better element in all branches of the drug trade.

THE TENTATIVE FOOD AND DRUG DECISION.

The tentative food and drug decision, issued by Dr. Wiley's Department, designed to make the enactment of the Foster Bill unnecessary, has also occasioned much discussion. It is believed by a great many deep thinkers in the drug trade that the tentative decision, if permanently adopted, will provide machinery which will protect the public against the illicit sale of Cocaine and other habit-forming drugs. One hearing has been held to consider the merits and demerits of this bill, and another hearing is scheduled for about March 20th. The public sentiment outside of the drug trade is such that corrective measures are sure to be adopted. Dr. Hamilton Wright, the Opium Commissioner of the United States, has just returned from abroad with added information which will fortify him in his campaign for a system of registration that will put the federal government in possession of every transaction involving the sale of this class of drugs, the prescribing or dispensing thereof by physicians, etc., whether the party concerned is importer, wholesaler, retailer or physician.

AMENDMENT TO THE SHERMAN ACT.

There are two large matters that have been engaging the attention of the N. A. R. D. Executive Committee and N. A. R. D. Counsel since the meeting of the Executive Committee in Chicago last December. One is the draft of a bill to amend the Sherman Anti-Trust Act so as to enable organizations of business men formed not for profit to work along cooperative lines for their mutual protection and advancement, drawing the line between such corporations and industrial and other corporations organized purely for profit. This bill has been drafted by Special Attorney Frank H. Freericks and is now receiving its finishing touches at the hands of the Committee on Legislation and the Na-

tional Executive Committee. This bill may or may not be introduced into the present Congress, the determining factor being political and other conditions. It is the desire of the National officers to introduce this bill at a time which will enable it to receive the widest publicity and the most serious consideration.

PRICE PROTECTION.

The other proposition deals with price-protection. The Executive Committee instructed Special Attorney Freericks to work out the details of a plan which will combine the Miles plan with the Boehm plan, the latter plan having been outlined in detail in N. A. R. D. Notes and many other pharmaceutical journals. It is expected that this plan will be ready in a very short time when it will be published in Notes and criticism invited from all quarters.

SECOND MID-YEAR MEETING OF EXECUTIVE COMMITTEE.

The latest news development in N. A. R. D. work is the decision to hold the second between-conventions meeting of the Executive Committee in Chicago during the first week of April, the first session being held Tuesday morning. One of the principal matters to be considered at this meeting of the Committee will be the place and date of holding the next annual convention. Portland, Ore., and Cedar Point, O., are the principal bidders. Several other cities have been mentioned recently as possible bidders,—Kansas City, Minneapolis, Cincinnati, and Savannah.

THE PROPAGANDA CAMPAIGN.

The U. S. P. and N. F. propaganda work carried on by the N. A. R. D. is meeting with great success and has the most hearty approval and cooperation of the medical profession. It has been a movement of steady progress from its very inception. Beginning in January, 1909, a little over three years ago, it was with a feeling of skepticism that the prime movers of the movement in the N. A. R. D. looked upon the future of the work.

It was apparent that the physicians were ready for a change in their armamentarium, for the use of specialties was fast proving to the thinking members in the medical profession the secret preparations to be ineffective and that reliance upon them in the future would constitute a very serious handicap to medical progress.

In this respect, therefore, it was surmised

that the movement would prove immensely popular and such indeed it has proven to be. The real concern was felt when the druggists themselves were considered: How would they cooperate with their association and with their brother druggists to make the movement the success it deserved to be? While it is true that druggists as a whole are not so well informed of the needs of a better medicinal armament for the medical profession as are the physicians, they have displayed a most commendable spirit by "getting in line," thereby making up for any defects manifested in the past.

BETTER PHARMACISTS NOW.

It is one of the most promising signs of the times that pharmacists today are much better pharmacists than they were three, four and five years ago, and much of this betterment can be directly traced to the N. A. R. D. propaganda campaign and the incessant hammering of N. A. R. D. Notes on the benefits of better laboratory and prescription facilities in the pharmacy, and on the need for more thorough pharmaceutical education.

The propaganda literature sent out by the N. A. R. D. to the physicians of the country has improved from year to year in appearance and style, as well as in the educational character of the literature itself, until today it consists of a neat 20-page monthly pamphlet, entitled "Monthly Therapeutic Topics." This pamphlet is sent as first-class mail and is accompanied by a card bearing the druggist's name or, in case a local association is doing the work, this association's name is printed on the pamphlet itself.

"Monthly Therapeutic Topics" gives an accurate and detailed description of three official preparations each month, including the composition, dosage, pharmacological action, incompatibilities, methods of administration, etc.; also an expose of fraudulent and misbranded drug products, as well as other matters of importance to medical practitioners.

MEDICAL JOURNAL SPACE SECURED.

The success of the movement in general and the physician's need of this kind of information has induced a number of medical journals to devote some space to the subject. As any as thirty of these journals have opened departments headed "Official Preparations," and the matter is being furnished by the N. A. R. D. This is surely good news and this space will undoubtedly prove of

lasting benefit to the U. S. P. and N. F. propaganda. These friendly medical journals are to be highly commended for the advanced stand taken and the appreciated efforts they are making to supply their physician subscribers with reliable information regarding the U. S. P. and N. F. preparations.

With the beginning of 1912 still another plan has been put into operation. This consists of sending a series of monthly letters to druggists and dispensing physicians, the intent of which is to reduce the practice of counter prescribing by pharmacists and dispensing by physicians to a minimum through educational methods. While all recognize these practices as unethical, few have given them enough thought and attention to realize that they are also money-losing propositions as well.

With the three plans mentioned in good working order, it will readily be seen that pharmacy is progressing and will sooner or later again come into its own. The one thing necessary is the undivided moral and financial support of the pharmacists themselves, for the benefits of the propaganda movement are in direct ratio to the amount of energy and money expended.

In such cities as Boston, Chicago, Cleveland, Cincinnati, St. Louis, Savannah, and scores of others, where the work is consistently carried on, the prescription files of pharmacists are mute but powerful witnesses that the money and labor expended are producing worth-while financial benefits.



THE NAMING OF MEDICINAL PRODUCTS.

The following circular letter has been addressed by the Council on Pharmacy and Chemistry of the A. M. A. to the manufacturers of and dealers in medicinal products:

The Council on Pharmacy and Chemistry of the American Medical Association, since its organization, has been obliged to refuse recognition to a number of otherwise unobjectionable preparations, because their names were considered detrimental to the best interests of the public and the medical profession. In the hope that in the future those who introduce new remedies may see their way clear to adopt names which will not be open to objection, the Council has decided to

issue this explanatory statement to the manufacturers of medicinal substances.

The trade names of pharmaceutical preparations or mixtures should be so framed as to indicate the most potent ingredients. An article whose name gives a false impression in regard to its identity or origin or which is in other ways misleading would not be acceptable for New and Nonofficial Remedies. An article will not be acceptable if its name suggests to the laity the diseases or conditions in which it is said to be indicated.

After December 31, 1912, recognition will be refused also to names so framed as to indicate even to physicians the diseases or conditions for which the article is to be used. The Council will make no objection to articles submitted to it before December 31, 1912, on the ground that the name is suggestive to the physician, provided that the name is already in use at the time of submission and also provided that the name is so framed as not to be liable, in the judgment of the Council, to lead to self-medication on the part of the public.

Medicine, in common with other branches of knowledge, requires that the subjects with which it deals be provided with a rational, descriptive nomenclature. The Council holds it desirable and important not only that the medicaments official in the pharmacopeias should be provided with scientific names, but that those of a proprietary character should also have names which are descriptive of their composition. Further, the Council believes that the interests of both the manufacturer and the consumer, the physician and his patient, can be sufficiently safeguarded if to the descriptive name of an article there be appended a distinctive word, syllable, initial or sign that shall identify its manufacturer. In substantiation of this it may be stated that such designations have permitted manufacturers to build up almost world-wide reputations for their products. Reference need only be made to chloral hydrate, Schering; chloroform, Squibb; phenacetin, Bayer; quinin sulphate, P. W. R.; sodium salicylate, Merck, etc. In view of these considerations, the Council offers its endorsement and cooperation to any effective movement toward the establishment of a rational, and if possible, international system for the naming of medicaments.

However, the Council recognizes that trade conditions make difficult or infeasible, at this time, the adoption of such a rational sys-

tem of nomenclature. But, on the other hand, experience has shown it possible to give names to new remedies which at least shall indicate their principal constituents. Thus among the articles described in "New and Nonofficial Remedies" appear such names as arsenoferratin, an organic compound of iron and arsenic; Bornyval, a valeric acid ester of borneol; brovalol, a bornyl bromvalerate; carbosant, a carbonate of santalol; guaiacodein, a compound of codein and guaiacol; tannismuth, a tannate of bismuth. Therefore the Council recommends that all remedies be given names which shall at least be suggestive of their most characteristic or potent constituents. The Council gives the fullest recognition to the principle that a discoverer has the right to name his discovery and interposes no restriction in the naming of new substances, provided that such names shall not be detrimental to the progress of medicine and thereby work against the welfare and health of the people.

Names which are suggestive of the diseases or conditions in which the remedy is said to be indicated are objectionable because the layman becomes familiar with the names of such remedies and their uses through physicians' prescriptions and is thus led to use them in indiscriminate and harmful self-medication. The many cases of harmful self-medication with such remedies as migrainein, diabetin, purgen, antikamnia, antitussin, which preparations at first were exploited to medical men only, are sufficient to show that such names should be forbidden.

But even if the name of a remedy does not disclose its proposed use to the laity, it is still objectionable if it suggests to the medical man the diseases or conditions in which the remedy is to be used. This for the reason that the thoughtless physician will base his use of the remedy on the name without giving due consideration to the condition and symptoms of the patient.

Recognizing that some therapeutically suggestive names have been applied without any intention of appealing to the laity thereby, and further recognizing the difficulty of changing a name once established, the Council has decided to make no objection to names that are now in use if they are therapeutically suggestive to physicians only. Such articles, if on the market and submitted prior to December 31, 1912, will be considered ac-

ceptable in so far as their names are concerned.

The following rules apply to the names of articles proposed for inclusion with New and Nonofficial Remedies:

1. The names of pharmaceutical preparations or mixtures must indicate the most potent ingredients.

2. Names which are in any way misleading will not be accepted.

3. Names which suggest diseases, pathologic conditions, or therapeutic conditions will not be admitted, except as provided under 4.

4. An exception is made for established names of synthetic substances, active principles, and other new substances: For these if submitted prior to December 31, 1912, therapeutically suggestive names may be admitted, provided that the name has been in actual use prior to December 31, 1912, and provided further, that the name is not likely to foster self-medication by the laity.

W. A. PUCKNER, Secretary.

Communications and Correspondence

All communications must be signed by their Authors

BAITING JOURNALISM.

I have nothing but praise for our new Journal, for the subject-matter, choice of articles, judgment even to the selection of the page paper, and color of the cover. I feel confident that our Journal will exercise due diligence to exclude communications which are based on personal grudges paying back old scores, hitting back because some member of the A. Ph. A. has seen a chance to get even with some other member who is a personal antagonist, etc., etc.

The new Journal has a fine opportunity to uplift the whole profession of pharmacy by dealing with public questions of prime importance in a dignified manner free from yellow journal methods or muck-raking propensities now so popular. Honest criticisms, of course, and helpful comments, which improve and uplift even if they destroy cherished ideals, are demanded when occasion

arises; evils must be combated in a fearless spirit, but sensationalism, simply for the purpose of arousing the interest of the readers by "exciting the animals" is to be deprecated. Smart writing, ridicule, sarcasm, unjust attacks, and, above all, *baitting* to provoke replies is a mean way to obtain copy.

You have asked for suggestions: These are tendered in a spirit of helpfulness. That you have avoided pitfalls of this kind in professional journalism amply proves the judgment of those who unanimously elected you as editor. Very truly yours,

JOSEPH P. REMINGTON.

COMMITTEE ON PRACTICAL PHARMACY AND DISPENSING BULLETIN NO. 1.

The practice of pharmacy today is not that of a few years ago, nor even of yesterday. We have but to retrace our steps a few years into the past to marvel at the rapid strides our profession has in reality made. The attempt to keep apace with this onward march of progress in matters pharmaceutical is the ultimate aim and function of our Association. To foster the good work and to make secure our continued prosperity ought to be the chief duty of each and every member.

Innumerable opportunities for individual work along many different lines present themselves to our fellow-pharmacists almost continually, e. g., the enormous task of revision of both our official text books furnishes an abundant field for suggestion and experimentation in practical pharmaceutical work. Papers on practical or operative pharmacy; notes or suggestions for the manipulation or improvement of official preparations; original articles or ideas pertaining to the science or art of pharmacy are particularly desired.

The Committee on Practical Pharmacy and Dispensing at this time would respectfully urge upon its members the desirability of engaging in some phase of this work to the end that our meetings at Denver may enjoy the benefit of such original work. The appeal is made thus early in order that all who so desire may have ample time for preparation.

Fraternally yours,

P. HENRY UTECH, Chairman.

J. LEON LASCOFF, Secretary.

Council Business

COUNCIL LETTER NO. 14.

PHILADELPHIA, Feb. 26, 1912.

Motion No. 29 (Election of members; applicants Nos. 128 to 163, inclusive) has received a majority of affirmative votes.

Motion No. 30 (Request of Druggists' Circular). Moved by Otto Raubenheimer, seconded by Ambrose Hunsberger, that the request of the Druggists' Circular (Council Letter No. 10, p. 19,) for permission "to publish a commentary on the various formulas contained in the work N. F., somewhat as the authors of the dispensatories have published comments in the text of the Pharmacopœia, and to quote extensively from the book," be referred to the Committee on Publication.

Of the nominees for the committee of three to act with a similar committee of the American Medical Association on legislation affecting jointly medicine and pharmacy (C. L. No. 13, p. 27,) the following have received the highest number of votes: J. H. Beal, J. P. Remington, and W. S. Richardson.

The following communication has been received:

"To the Members of the Council:

My attention has been called to the action taken at the Boston meeting with reference to the appointment of a committee from the American Pharmaceutical Association to act in conjunction with delegates or a committee from the various allied drug associations, to jointly consider legislative matters that are pending, and the presentation of changes and amendments and necessary legislation.

This should receive attention, and a discussion of the subject will be in order. It may be well to point out, also, that a committee is to be elected by the American Pharmaceutical Association to act with a similar committee of the American Medical Association on matters of legislation affecting jointly the professions of medicine and pharmacy. The powers of this committee are limited, it having been expressly provided by the Association at the Boston meeting, that 'The reports of said joint committee shall be presented to both the A. Ph. A. and the A. M. A., but no formulation of legislation shall be taken as having received the endorsement of either association unless the same shall have been formally approved by resolution.' In other words, the committee is to advise and discuss, and then recommend action by the Council or the Association.

W. S. Richardson, of the City of Washington, is Chairman of the Committee on Legislation of the N. A. R. D., and also of the Committee on National Legislation of the A. Ph. A. The Chairman makes this suggestion: That the Council select a committee of three, of which the Chairman of the Committee on National Legislation of the A. Ph. A. shall be Chairman, to consider the possibility of closer cooperation between the American Pharmaceutical Association and other pharmaceutical organizations in the matter of legislation pertaining to these interests.

The Chairman takes this opportunity of asking that his name be not considered for the Committee on Legislation to act with a similar committee from the American Medical Association.

E. G. EBERLE, Chairman."

Motion No. 31 (Co-operation in Pharmaceutical Legislation). Moved by Ambrose Hunsberger, seconded by J. W. England, that the Chairman of the Council appoint a committee of three, of which the Chairman of the Committee on National Legislation of the A. Ph. A. shall be chairman, to consider the possibility of closer co-operation between the American Pharmaceutical Association and other pharmaceutical organizations in matters of legislation affecting pharmacy.

J. W. ENGLAND, Secretary.

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COUNCIL LETTER NO. 15.

PHILADELPHIA, March 4, 1912.

Members of the Council:

Motions No. 30 (Request of Druggists' Circular) and No. 31 (Co-operation in Pharmaceutical Legislation) have each received a majority of affirmative votes.

The necessity for co-operation between pharmaceutical organizations in matters of pharmaceutical legislation is very apparent in connection with the Richardson Amendment to section 6, 7 and 8 of the food and drugs act. This measure (H. R. 14060) was prepared by Representative Richardson, of Alabama, by the request of the House Committee on Interstate and Foreign Commerce, to carry into effect recommendations made by President Taft with reference to proprietary medicines and the therapeutic claims on labels of medicinal preparations.

It is probably the most important food and drug legislation proposed since the adoption of the national food and drugs act of June 30, 1906.

It is not necessary to discuss the Richardson amendment in this letter, save only to-

say that while the intent of the bill is in harmony with principles long advocated by the American Pharmaceutical Association, regarding the sale of nostrums and unwarranted claims for the same, the bill itself is badly phrased and conveys a different meaning than that obviously intended.

The bill as it now stands will be heard by the House Committee on Interstate and Foreign Commerce at an early date, and it is most important that representatives of pharmaceutical organizations (which represent the interests of pharmacists) meet together in advance of the hearing, so that the united opinions of pharmaceutical interests shall be presented, and a practicable law passed.

W. S. Richardson, of Washington, D. C., Chairman of the Committee on National Legislation of the A. Ph. A., has taken up this subject very energetically. He has with him on the committee: J. C. Wallace, F. A. Hubbard, C. Koch and E. G. Eberle. He desires to call a meeting of the Committee on National Legislation of the A. Ph. A. at Washington to consider the Richardson amendment with members of the corresponding committee of the N. A. R. D., and proposes to do this at a date about one week in advance of the hearing, when he will "wire" all interested parties. Mr. Richardson asks that the Council make an appropriation to pay the expenses of the members of the Committee on National Legislation of the A. Ph. A., while going to, from and in Washington, and since all the members of the committee will probably not be able to attend the meeting, he estimates that \$100 will be sufficient to meet the expenses.

Your Secretary has presented this matter to your Finance Committee and this committee has approved such an appropriation.

Motion No. 32 (Appropriation of \$100 to Committee on National Legislation). Moved by J. P. Remington, seconded by J. W. England, that the sum of one hundred dollars, or as much of it as may be necessary, be appropriated to pay the expenses of the members of the Committee on National Legislation, A. Ph. A., while going to, from and in Washington, in the consideration of the Richardson Amendment of the food and drugs act, and such other proposed legislation as may affect the interests of our membership.

Mr. Richardson has had a conference with Dr. Hamilton Wright in regard to the de-

cisions of the Hague Conference, and it might be desirable for the committees to consider, also, the subject of narcotic legislation as affecting pharmacists.

Do you approve the motion? If at long distance, please "wire."

J. W. ENGLAND, Secretary.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.



PERSONAL RECOLLECTIONS OF DR. ENNO SANDER.

The characters which constitute individuality and express the personality of a man are better gathered from the recollections of those who knew him and worked with him than from the historical details of a formal biography. The latter merely catalogs him as a human unit; the former show us the man himself and betray the touches of nature that mark his kinship with other men.

That our late fellow member, Dr. Enno Sander, was something more than a census unit, and that he possessed a peculiarly marked and pleasant personality is well shown by the following recollections of some of those who knew him intimately and loved him well.

BY PROF. JOSEPH P. REMINGTON.

It is hard to realize that this staunch friend of everyone, and genial spirit has departed this life. He became a member of the American Pharmaceutical Association in 1858 and for 54 years his loyalty has never been questioned, nor did his interest abate. He was elected President in 1871 and has been a conspicuous figure at the meetings of the Association during a long period. Enno Sander was well read, he had a strong liking for scientific pursuits, a mind capable of grasping facts and a heart swelling with love for his friends. His industry was remarkable, especially when working on the subject of the analysis of mineral waters, in which he had

been interested for many years. Two years ago when the writer called on him, in St. Louis, although suffering then from the malady which caused his death, he was found working in his laboratory, and he came out into the office just as he was, with hands outstretched and his face beaming with delight at seeing an old friend. His pain was forgotten, and he was soon rehearsing events and depicting scenes which had been mutually enjoyed. In the city of St. Louis the death of Enno Sander will especially cause great sorrow. In no event in which Pharmacy or Chemistry was a moving cause of a meeting or celebration was Enno Sander omitted. Of late years his illness kept him from attending scientific or social gatherings, but the grand old man preserved to the last a lively interest. He especially was fond of the society of young men, and young men were attracted to him. He was approachable and everyone felt that he could tell his story to Enno Sander, and be sure of sympathy and help, if it was in his power to extend it.

His death is really a National loss and his friends cannot help feeling that his sufferings have won their sympathies, and they grieve when they fully realize that his Spirit has fled.

BY DR. J. M. GOOD.

We are now confronted with changed conditions here in St. Louis.

The members of the American Pharmaceutical Association, generally, together with those of this city specifically, must adapt themselves to the change and think of St. Louis, sine Enno Sander.

Because of his advanced age, his numerous friends in commercial and professional life, as found in three distinct, successive generations, the sense of loss which follows his departure is very widely felt. That he was keenly interested, to the last, in matters medical, pharmaceutical and scientific, is shown by the esteem in which he was held by those who are actively interested in the Medical Colleges, the College of Pharmacy and the Academy of Science. Prominent members of each profession every one of whom felt in his death a personal loss, were present at the funeral services. These obsequies were of a character to meet the approval of all who are opposed to ceremonial or ostentatious display on such occasions.

They were such as would have met with his approval were he attending the funeral of

a friend. The speaker of the occasion pronounced no eulogy upon him but the tribute which he paid to Dr. Sander's life and personal characteristics was recognized as apt and fitting.

Just now our sense of loss is keen. The lives of men like Procker, Parrish, Ebert, Maisch and others who were his contemporaries and friends and appreciated his ability loom up large in perspective as time passes.

BY W. BODEMANN.

I loved and admired Enno Sander for what he was not. He was *not* a sycophant, *not* a Tartuffe, and I have often enjoyed his outbreaks of "furor teutonicus" when aroused by the charlatanry and hypocrisy of others. He had his own convictions and expressed them most graphically, caring little whether they were liked or not.

During the last 15 years I had to spend three or four days at a time in St. Louis twice a year, and made it a point to stop at the hotel where Dr. Sander lived, so as to enjoy his company. Generally he managed to sandwich in a lunch at Faust's, with Dr. Whelpley as the third, and I must say I never knew a man who excelled Dr. Sander as a host in wit, conversational talent and good cheer.

He never married because, as he used to say, the ladies all loved him and he was too kind to hurt their feelings by marrying one, and he objected to marrying them all.

During the year of Searby's Presidency of the A. Ph. A., Searby and I spent an evening with Dr. Sander till 9 p. m., then retired to Searby's room—and I dropped from the frying pan into the fire. Searby was the gayer of the two and we engaged in a most lively and fascinating conversation about pharmaceutical cripples till the early morning separated us—never to see Searby again.

Enno Sander was a member of the Anhalt Chamber of Deputies at the time when Herman Raster, the afterwards famous Chicago editor, was official Reporter of the Chamber. Both had to leave the Fatherland on account of their love of liberty, in fact Dr. Sander was sentenced to death and was helped to escape by a student friend who was an official, as I learned a few years ago from this man's daughter. I many times tantalized the Doctor by pointing to his "criminal record." That's the way the fatherland treated the

elite of her children. The United States had the benefit of it.

It gave Wisconsin the Latin farmers, and to the nation such men as Schary, Knapp, Pretorius, Raster, Hecker and a legion of others.

Sander lived within 14 days of 90 years and, as he loved to say, was 90 years young. His was indeed a life of sunshine; he loved and gave sunshine freely, and I am proud of having had the privilege to bask in it.

Last but not least, Enno Sander was the oldest associate member of the C. V. D. A.—this most aristocratic as well as most democratic of Pharmaceutical bodies, and he enjoyed to attend the "annuals," and we all were glad to have him with us.

BY DR. O. A. WALL.

In June, 1864, I graduated from the City University in St. Louis, a school conducted by Prof. Edward Wyman, father of the late Surgeon-General Walter Wyman, who was my schoolmate. I had made up my mind to become a physician, and as my father suggested that the only way to become a thoroughly qualified one was to start at the bottom and learn all there was to learn, which included a preliminary study of pharmacy, he called on Dr. Enno Sander, whom he much admired for his ability and reputation as a pharmacist, and arranged to have me enter as an apprentice in Dr. Sander's drug store.

While St. Louis had a quite a number of drug stores at that time, it will be generally conceded by our older citizens that the most pretentious and best equipped stores were Dr. Enno Sanders', under Barnum's Hotel on Second and Walnut streets, Sennewald & Lange's on Third and Market streets, and Maurice Alexander's on Fourth and Market streets; so it was my good fortune to be apprenticed in one of the leading pharmacies of the city. These stores were conducted in the old-fashioned professional way with but few side-lines, and even these were more or less closely related to the drug business, as pure spices and flavoring extracts, etc. As the leading physicians of that day were Germans, most of the best prescription physicians of that day were Germans, and most of the best prescription business came to Sander's or Sennewald's drug stores. My apprenticeship was also on the German plan, i. e., pay for my work was to be instruction in the business of pharmacy.

We made our own pharmaceuticals, the manufacture of these goods not having developed as it has since; still, Dr. Sander had started a laboratory for drug and spice grinding, flavoring extracts, powdered spices, etc.; this laboratory was only two blocks away, on Myrtle, between Second and Third streets, and we clerks were often sent to the laboratory when business was quiet in the drug store, or vice versa, wherever we could help most or learn most at the time.

The U. S. Pharmacopœia was not so generally in use as it is now, and most of our work was done according to the German and other European pharmacopœias, according to the preferences of the physicians whose prescriptions we dispensed. I remember especially one physician who designated the preparations of the Bavarian Pharmacopœia, and another who used mainly the "Rademacher" preparations. The part of St. Louis known as "French Town" lay east of Fourth street, and extended from about Market to Convent streets; it was practically the old city, with the limits as prior to about 1836; it was inhabited by many of the old French settlers and their descendants, as well as by Germans who arrived later, and much of the business of Dr. Sander's drug store came from this old section of the city with its varied nationalities and varied household remedies requirements. Dr. Sander prided himself on never substituting. A German physician could rely on getting his preparation compounded according to the pharmacopœia he preferred, the Bavarian being perhaps most frequently specified. Likewise, a French physician could get his prescriptions filled with preparations made according to the French Codex.

At that time many people believed in the charms and hoodoos described in the "Seventh Book of Moses" (a book of magic) and we kept for sale many of the ingredients required for these formulas. A customer who called for bear's fat, deer's tallow, goose-grease, rattlesnake oil, or even "*Arunzia Hominis*," was sure to get the genuine article. Skinks, cellar bugs, rasped harts' horn, etc., were some of the animal substances for which we had occasional calls. *Oleum petrac*, rock-oil, mineral oil, was petroleum skimmed from certain streams in the East in territory now known as the "oil-fields." Grape-sugar was made from grapes or raisins and cost about a dollar a pound; we kept both Rus-

sian and Chinese Rhubarb, the Russian re-tailing at about \$1 an ounce.*

Among the French people the fat of dogs was considered superior to cod-liver oil as a remedy for consumption, and we frequently rendered this fat at the laboratory on Myrtle street; on one occasion the dog from which we had taken the fat looked so appetizing that the Superintendent, Mr. Scheffer (afterwards of Larkin & Scheffer), my fellow-clerk, Alois Blank, and I got the engineer, whom I knew only as "August," to roast it on a spit, and we found it quite good eating.

I mention these things merely to show how conscientious Dr. Sander was in his determination not to substitute, but to sell only the right goods.

Having to make preparations from so many pharmacopœias, Dr. Sander's apprentices had unusual opportunities for experience. Dr. Sander would assign definite lessons for the week; to be read or studied, and either he or one of his partners would hear us when we were not otherwise too busy, usually on Sundays. Even after beginning the work with Dr. Sander, I continued to go to the City University three hours a week for instruction in Latin, and for this reason Dr. Sander jokingly referred to me and addressed me as "Herr Professor."

About this time the St. Louis College of Pharmacy was organized, Dr. Sander being one of the most active and enthusiastic of its founders and promoters. When the College was ready to receive students, Dr. Sander sent both Alois Blank (who later became a prominent pharmacist) and myself to hear the College lectures, for which he paid, as he considered himself under obligations to provide for our instruction in pharmacy. The lectures were on three evenings each week.

I remained with Dr. Sander for nearly three years; then I went to "read medicine" with a preceptor, as was the custom in those days. Later on I started a drug store of my own, and also went to medical college, graduating in 1870 from the Missouri Medical College; the following year I went to New York City and graduated from Bellevue Hospital Medical College in 1871; I then went

back to St. Louis and commenced the practice of medicine.

Meanwhile the St. Louis College of Pharmacy had had several "lean years"; for in spite of a modest amount of advertising there were no applicants for matriculation; nor, in fact was the college in condition to give instruction, as all its apparatus, museum, herbarium and other collections had been lost in the fire which destroyed the building of the Academy of Science, in which the College of Pharmacy had rooms.

But about 1870 the faculty was reorganized, a new location was secured, new appliances provided, and the work of the college was resumed. Dr. Enno Sander temporarily occupied the chair of *Materia Medica*, Pharmacognosy and Botany, and he taught pharmacognosy according to the methods introduced shortly before by Prof. Berg of Germany. The credit of introducing modern pharmacognosy in the United States belongs to Profs. Maisch and Sanders, who taught about the same time.

For two or three years, while studying medicine, I saw little of Dr. Sander, but when I commenced to practice medicine, I frequently had occasion to drop in at the old store on Second and Walnut streets, which, however, no longer belonged to Dr. Sander who sold out his interests in the retail business, and confined himself to manufacturing. On one of these occasions I met Dr. Sander, and, as usual, he greeted me as "Herr Professor," and this probably suggested to him the idea of securing a permanent teacher for the chair he temporarily held in the College faculty; he proposed me as his successor in 1873. Dr. Sander gave me his books on pharmacognosy and his written lectures, for like Prof. Maisch, he read his lectures, the notes for which I still have. He was friend and advisor to me, and he was often spoken of by mutual friends as my "pharmaceutical daddy." This friendship continued until his end, and he often visited at our home, enjoying the friendship and esteem of my family and myself, and always remembering us with the season's greetings, or occasionally staying with us for a week-end visit.

For many years, now, I have been the sole survivor of all who worked for Dr. Sander when he was in the drug business; and the years, as they rolled on, simply intensified my admiration and respect for his knowledge of pharmacy and pharmacognosy, and for his

*This was about the end of the Civil war and gold commanded a high premium; the prices of imported articles were based on gold values, which caused some very high prices in U. S. currency.

care conscientiousness in training his apprentices and in conducting the drug business along strictly ethical and professional lines. He was truly "a grand old man" in pharmacy. May his ashes rest in peace, and may his memory remain as an incentive to all of us to do our best for the interest of our calling.

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CHARLES L. STILLMAN.

Charles L. Stillman, of Lead, S. D., died suddenly on January 20, 1912. He was formerly in business at Columbus, Neb., but removed to Lead, where he has been located for five years. He has been prominent in the pharmaceutical affairs of his state, having served as a member of the Nebraska Board of Pharmacy from 1900 to 1903. He joined the American Pharmaceutical Association in 1910.

J. W. E.

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ERNEST MOLWITZ.

Ernest Molwitz died at his home in New York on January 29, 1912. He was born in Rothenburg, Germany, on August 24, 1836. His father was a druggist. Young Molwitz came to this country when fourteen years old, and was employed in the dispensary at Bellevue Hospital when nineteen. After two years spent at Pittsburg he returned to New York and clerked for A. G. Dunn, on Third avenue. In 1868, Mr. Molwitz started in business for himself at Sixth avenue and Fifty-third street, moving to Fifty-fourth street later. In 1886, he sold the business to Otto Boeddicker and devoted his time to his store at Eighth avenue and One Hundred and Forty-fourth street until his retirement in 1909. He took a deep interest in professional pharmacy and in the New York College of Pharmacy. He joined the American Pharmaceutical Association in 1867, and was one of the few who attended both the 1867 and the 1907 meetings of the American Pharmaceutical Association held in New York. A widow, two sons and five daughters survive him.

J. W. E.

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BENJAMIN S. WOODWORTH.

Benjamin Stadley Woodworth, a prominent pharmacist of Fort Wayne, Ind., died suddenly on February 22, 1912. He was born in Fort Wayne, and was within a few days of his thirty-eighth birthday. He was educated in the city schools of Fort Wayne and attended Cornell and Purdue Universi-

ties, later entering the drug business with his father, and succeeding to the ownership of his father's store. Mr. Woodworth was a member of the Masonic fraternity and a 32° Mason. He became a member of the American Pharmaceutical Association in 1906. He was unmarried, and leaves a brother, Carl Woodworth, of Chicago Junction, Ohio.

J. W. E.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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PHILADELPHIA BRANCH.

(February Meeting)

The regular meeting of the Philadelphia Branch was held at the College of Physicians on the evening of February 6, 1912, Chairman Stanislaus presiding.

A resolution submitted by Chairman LaWall protesting against the attitude of the Treasury Department in regard to the recovery of tax-paid alcohol used in the manufacture of galenicals was unanimously adopted. In order that the protest might be widespread and effective the committee suggested similar action by other pharmaceutical bodies throughout the country.

Dr. Carl E. Smith was elected a member of the Branch.

Messrs. Kraemer, Vanderkleed and Blair were appointed as members of the nominating committee to select a list of names to be submitted at the next meeting for election to the various Branch offices, as well as to the Council of the A. Ph. A.

The topic of the evening consisted of a contribution on "Purified Caramel and the Standardizing of Caramel Solutions" pre-

senied by Mr. Geo. M. Beringer. The paper is published in full and is well worthy of the attention of practicing pharmacists since it points a way to overcome the varying tinctorial qualities possessed by the Caramel usually available. In closing the interesting discussion which followed the reading of the paper, Mr. Beringer agreed that the final solution of the Caramel problem lay in the working out of the chemistry of the aldehyd resins, but he felt, nevertheless, that his investigations had yielded a product quite sufficient to meet pharmaceutical requirements, which could be supplied at a moderate price.

In discussing the topic, Dr. A. W. Miller outlined the difficulties involved in the manufacture of Caramel. Uniform results were impossible to achieve, he said, and some manufacturers had tried to overcome the difficulty by the addition of anilin colors—a disreputable practice.

Others who discussed the paper from interesting and varied viewpoints were Messrs. Cook, Kraemer, Blair, Horne, LaWall, Stanislaus, and Henry.

Mr. Toplis exhibited an interesting, yet simple, device to be used for sterilizing normal salt and other solutions. The device consisted of an ordinary galvanized iron bucket sufficiently large to contain eight one-pint bottles in an upright position, and provided with a cover. A raised inner bottom designed to give free circulation of water under the bottles consisted of a tin pie-plate, punctured liberally and used in an inverted position. To prevent ingress of contaminated air into the sterilized solutions, Mr. Toplis stoppers the bottles loosely with proper corks, the latter being covered with pleated parchment-paper caps of sufficient length to extend well down the lips of the bottles, these being drawn closely and tied when the operation is completed.

Mr. Cadmus submitted the report of his committee on the proposed additions to the N. F. The report was adopted and directed to be sent to the proper N. F. sub-committee.

AMBROSE HUNSBERGER, Secretary.



PHILADELPHIA BRANCH.

(March Meeting)

At the last meeting of this Branch, held on March 5, 1912, the following list of officers was elected to serve during the ensuing year:

President, Dr. F. E. Stewart; First Vice-

President, Samuel C. Henry; Second Vice-President, E. Fullerton Cook; Secretary, Ambrose Hunsberger; Treasurer, William McIntyre; Member of Council, Robert C. Cadmus.

Committee on Professional Relations—Frank E. Morgan, Wm. L. Cliffe, Dr. H. C. Wood, Jr.

Committee on Practical Pharmacy—Paul L. McConomy, Geo. M. Beringer, O. T. Osterlund.

Committee on Membership—Otto Krauss, J. W. England, W. E. Lee.

Committee on Program—The President, Secretary, Treasurer and the Chairmen of the above Committees.

A rousing vote of thanks was given the retiring officers for their efforts in the interest of the Branch during the past year.

With Mr. Beringer in the chair the scientific program of the evening was provided by retiring President Stanislaus.

This consisted of an extremely interesting and comprehensive paper on "Biebrich Scarlet and its Pharmacy and Chemistry" in which the writer considered every phase of the topic. No abstract is given as the paper will appear in its entirety.

The advisability of arranging for an exhibit at the approaching convention of the A. M. A. to be held at Atlantic City was referred to a committee consisting of Messrs. Blair, Beringer and Henry. In view of the splendid recognition accorded the exhibit made at a similar convention several years ago the committee will no doubt decide to repeat the demonstration.

A prolonged discussion followed a reference to the objectionable features of the Richardson Bill now before Congress. The Branch went on record as endorsing the suggestion of President Taft in the matter of therapeutic claims, but the question of stating the opposition of the Branch to certain other features of the bill was referred to the executive committee with power to act.

AMBROSE HUNSBERGER, Secretary.



PHILADELPHIA BRANCH.

SCIENTIFIC SECTION.

The meeting was called to order Tuesday, March 5, 1912, at 8 p. m., President LaWall presiding.

The topic of the evening was "The Organic Substances of the U. S. P."

The discussion of alkaloids, synthetics, essential and fixed oils, ferments, etc., was par-

ticipated in by Messrs. Beringer, England, Pancoast, Pearson, Rosengarten, Sadtler, Stanislaus, and others.

Dr. J. W. England read a paper on Creosote, calling attention to its variable nature and the difficulty of keeping it within standard limits. He recommends raising the standards for specific gravity and boiling point.

Professor Sadtler spoke of the action of the Revision Committee and commended a reduction in the Pharmacopœa tests so that only the most important ones would be retained, and feels that this would make the Pharmacopœa a much more practical volume.

Professor Pearson called attention to many imperfect tests and proposed a number of more practical ones and mentioned a number of substances which he thought would be well to incorporate in the Pharmacopœa.

He feels that the nomenclature of alkaloids should be retained so that the ending "ina" or "ine" should be used instead of the curtailed "in."

Professor Stanislaus called attention to the fact that the synthetic alkaloids are optically inactive while the natural alkaloids, with three exceptions, are optically active. He showed a sample of sandalwood oil containing 92% of Santalol, which he found to be prepared from 80% East India oil with 20% South American oil. The Amyris or South American oil increases the amount of Santalol present.

Since oil of wintergreen and oil of birch are identical, he recommended that the Pharmacopœa admit only oil of birch since its use is much more common.

Messrs. Rosengarten, Pearson, Sadtler, Pancoast and others gave a general discussion of the subject of the evening, thus producing a very interesting meeting throughout.

At the close of the program the election of officers for the ensuing year took place with the following result:

President—Professor C. H. Kimberly of the Medico-Chirurgical College.

Secretary—Professor F. P. Stroup of the Philadelphia College of Pharmacy.

C. H. KIMBERLY, Secretary.

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NASHVILLE BRANCH.

(February Meeting)

The regular monthly meeting of the Branch was held at Furman Hall, Vanderbilt, February 8, with Dr. J. O. Burge presiding.

The exhibition and criticism of the proposed formulæ of the new edition of the National Formulary was continued from last meeting.

Samples of the Salicylated Mixture of Iron were exhibited. A copious precipitate formed on mixing this was left on the filter. Warming this mixture before filtering was found to aid the solution of this precipitate considerably.

A sample of Compound Gargle of Guaiac exhibited was a very stable mixture.

Samples of Liquid Petrox were also shown. A sample made with the light oil made a clear preparation. Dr. Burge suggested the use of Spirit of Ammonia instead of Alcohol and Stronger Ammonia Water.

The sample of 10 percent Iodine Petrox was an elegant pharmaceutical. The Petroxoline preparations form emulsions that do not separate easily when mixed with water.

William R. White read a paper before the Branch on the subject "Pharmaceutical Arithmetic," in which some very interesting practical problems were discussed. Considerable discussion followed the reading of this paper.

A resolution was passed instructing the Secretary to write the Nashville Academy of Medicine in regard to the desirability of having a joint meeting of the two associations to discuss the samples of the proposed additions to the next edition of the National Formulary.

The subject assigned for the regular March meeting was "Disinfectants and How to Use Them."

William R. White,
Secretary.

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NASHVILLE BRANCH.

(Joint Meeting with Academy of Medicine)

The Branch held a joint meeting with the Nashville Academy of Medicine Tuesday night, February 27, to discuss and criticise the formulæ and samples of the new preparations proposed for the next edition of the N. F., a very large crowd being present.

Dr. J. O. Burge spoke on the history and work of the Branch, and Dr. E. A. Riddiman, after explaining the status of the N. F. and the objects of the meeting, exhibited samples and formulæ of the proposed preparations.

Quite a good deal of discussion was had and some very good criticisms were made by the physicians. A resolution was passed by the Academy that it was the sense of the

physicians that the number of formulæ should be lessened and the others simplified as much as possible.

The meeting was in most respects a harmonious one and expressions of good feeling were made by both bodies.



CHICAGO BRANCH.

(February Meeting)

The February meeting of the Chicago Branch of the American Pharmaceutical Association was held at the University of Illinois School of Pharmacy on Tuesday evening, February 20. The program consisted of a lecture upon the National Formulary by Professor C. M. Snow, who displayed an extensive exhibit of preparations of the National Formulary. Professor Snow's talk was greatly enjoyed and was followed by a discussion, which was participated in by Professor Clark, Mr. Potts, Mr. Gray, Mr. Becker, Professor Patterson and other members of the Branch.

Secretary Day announced that the March meeting would be a notable one, and read a letter from Professor J. U. Lloyd accepting an invitation from the Branch to make an address at the next meeting. Professor Lloyd will talk about his travels in the Orient and will discuss the collection of drugs as witnessed by him during his travels.

The officers of the Branch have extended an invitation to the Chicago Retail Druggists' Association to make the March meeting a joint meeting of the Branch and the C. R. D. A.

The March meeting will be held on Thursday evening, March 21, the date having been changed to suit Professor Lloyd, who was unable to come for the regular meeting night.

A cordial invitation is extended to all the druggists of Chicago and vicinity to attend this meeting, which will be held at the Northwestern University Building, Lake and Dearborn streets.

W. B. DAY,
Secretary.



CHICAGO BRANCH.

(March Meeting)

The March meeting of the Chicago Branch of the American Pharmaceutical Association was the most successful and most largely at-

tended meeting that the Branch has held for several years. By invitation of the Branch the Chicago Retail Druggists' Association joined with the Branch for this meeting and was well represented both in officers and in members.

The guest of the evening was Professor John Uri Lloyd who gave a most interesting talk concerning his travels in eastern lands and his observations concerning the collection and shipment of such drugs as opium, licorice, tragacanth, myrrh, frankincense, nutgalls, etc. Professor Lloyd's lecture was enlivened by many anecdotes and reminiscences and greatly delighted his auditors.

At the conclusion of the lecture Professor Lloyd was given a rising vote of thanks.

W. B. DAY, Secretary.



NORTHERN OHIO BRANCH.

The regular meeting of the Northern Ohio Branch was held at the Cleveland School of Pharmacy, March 8th. The following officers were elected for the ensuing year: President, L. C. Hopp, Ph. G.; Vice-President, Wm. T. Hankey, Ph. G.; Secretary-Treasurer, T. Bernard Tanner, P. D.; Member of the Council, L. C. Hopp.

A very interesting paper was then presented by Professor N. A. Dubois, on The Test Solutions of the U. S. P., with a brilliant array of figures. Dr. Dubois pointed out the advantage of having the solutions made up according to normality instead of percentage strength, as they are at the present time.

The following took part in the discussion: L. C. Hopp, Professor Feil, John Krause, Wm. T. Hankey, Professor Tanner.

Professor Tanner then read a paper on the Solution of Magnesium Citrate, with a suggested modification in method of manufacture. Dr. Tanner said that he thought the present formula very satisfactory, but thought in view of the fact that unless the solution is protected by being distinctly acid precipitation will take place, that he could see no reason why the syrup of Citric Acid should

not be added at once, this additional quantity of acid seemingly to promote the formation of a bicarbonate after the potassium bicarbonate had been added. Mr. Hankey said that he had used the method suggested by Professor Tanner for over twenty years and was surprised that the majority of pharmacists did not know of it. The paper was very thoroughly discussed by L. C. Hopp, W. F. Fox, Professor Feil, Wm. T. Hankey, John Krause and others. Professor Tanner presented examples of the solution prepared by the method which were practically permanent.

Mr. Hopp then brought up the discussion of Ointments, Ungt. Phenolis being discussed particularly. It was the unanimous opinion of everyone present that the addition of wax to the base of this Ointment would be a decided advantage. Mr. Hopp also spoke of the duo-decimal system for the manufacture of Triturations, saying that since the Troy system was still in great use, he thought twelve a better figure than ten.

The subject of manufacture of Glycerin suppositories was then quite fully discussed by Hopp, Tanner, Feil, Hankey and others.

T. BERNARD TANNER, Secretary.



DENVER BRANCH.

The Denver Branch gave a dinner at the Traffic Club Tuesday evening, February 20, at which Messrs. Robert S. Hiltner, W. A. Hover, L. B. Bridaham and E. L. Scholtz were guests of honor.

The dinner was followed by the regular meeting, which President Best called to order at 8:30 p. m. The minutes of the January meeting were read and approved. Mr. Bresler reported the election of Mr. Jeanson as Secretary of the Program Committee.

Mr. Robert S. Hiltner, Chief of the U. S. Food and Drug Inspection Laboratory of Denver, who was on the program for a paper on Drug Adulteration, was then called on by the President.

A hearty vote of thanks showed the appreciation of Mr. Hiltner's paper.

The Richardson amendment of the Federal Food and Drugs Act, which was on the program for discussion, was now taken up. Mr. Nitardy read a paper which he stated had been written for the February issue of the Rocky Mountain Druggist. A very lively discussion ensued. Mr. Clayton stated that

in his opinion the sentence in Sec. 8, making any drug misbranded "when represented to the public as having any remedial property," was rather radical and would make it impossible to sell any kind of a patent medicine.

Mr. Ford explained that in this sentence lay the life and value of the proposed amendment. As long as the ruling of the Supreme Court regarding therapeutic statements, as illustrated in the Johnson Cancer Cure case, would stand, it would be impossible to make a law forbidding lies on the label. The only manner in which the evil can be checked lies in forbidding all therapeutic claims on the label. The amendment if passed would not prohibit the sale of patents, but would prohibit any and all therapeutic claims, false or true, on the label. Preparations would be sold on their merit only. To illustrate the point, he said that under the new amendment castor oil might be sold under a label stating that it is castor oil and a laxative or cathartic, to be taken in such or such doses; but if the label should state that it was a remedy or cure for constipation, the article would be deemed misbranded. Mr. Ford further stated that it must be remembered that the law would only affect interstate traffic and that a drastic federal law would be a protection to the individual states. Under present conditions state laws are nullified because merchants from outside states can ship in anything and everything so long as they do not violate the federal law.

Mr. Bresler spoke along the same line, giving illustrations where our pharmacy law was made void through the lack of sufficiently stringent federal laws.

Mr. Hover thought that lye and tobacco had no proper place in a Food and Drugs law and should not be included. Others could see no objection to including them. Surely no harm could come from the honest labeling of these articles, even though they may not be properly classed as foods or drugs.

Mr. Clayton expressed himself on this subject by saying that he believed that we were coming towards a time of honest merchandising, a time where not only foods and drugs but all manner of merchandise would have to be true to label or claims made for it, and the sooner we would reach this point the better for all concerned. His remarks were applauded by all.

Mr. Nitardy criticised the amendment for permitting official drugs and preparations to

be sold under official names when they deviate from the official standard, and offered the following resolution:

"Be it Resolved, By the Denver Branch of the American Pharmaceutical Association, that we recommend that the Food and Drugs Act of June 30, 1906, be so amended that all articles sold for medicinal purposes that are recognized by United States Pharmacopœia or National Formulary shall conform to the official standard and be deemed misbranded if they do not conform to the standards laid down by these authorities; provided, that they may be sold when not conforming to these standards if plainly labeled, *'Not for Medicinal Use.'*"

After a lively debate the provision was added to the resolution by Mr. Nitardy, its final form being the above mentioned. A motion to adopt the resolution was carried by unanimous vote.

It was decided to consider the Richardson amendment further at the next meeting, as the bill had not been thoroughly studied by all members.

F. W. NITARDY, Secretary.



CITY OF WASHINGTON BRANCH (February Meeting)

The February meeting of the City of Washington Branch was held on February 21, 1912, in the Trustees' Room, National College of Pharmacy, George Washington University.

After completing the routine business before the Branch, and discussing the acceptance of the invitation of Dr. True to visit the drug gardens at Arlington, Va., the proposed Petrox preparations were discussed.

A motion was duly made and carried to accept the invitation of Dr. True, and the time of the visit was set for May.

The first of the Petrox preparations to be discussed was Liquid Petrox. Several samples of this preparation made on various dates were exhibited.

A motion that it be recommended that the directions for making this preparation be so amended as to read that heat be used only when the preparation is not clear, was carried.

At this point a very interesting letter from Dr. Thum of the Philadelphia, Pa., German Hospital was read. He recited his experiences with this preparation and suggested a modified formula with which he had had much success.

The difficulty in getting stronger ammonia water which had not lost considerable of its strength for making this preparation brought up a discussion as to the merits of anhydrous ammonia for preparing ammonia water, stronger ammonia water, and spirit of ammonia. A letter from Edward Mallinckrodt calling attention to the danger of explosion from the too rapid evaporation of the ammonia, causing a vacuum to form; the cylinders then refilling by sucking back (usually unnoticed by operator), and then because of an insufficiency of space being left in the cylinders for expansion, they are liable to explode with the rising temperature. Very serious accidents have occurred, it was stated, from this cause, and would be more likely to occur when the anhydrous ammonia was handled by inexperienced druggists and their assistants. Mr. Mallinckrodt recommended that the handling of anhydrous ammonia be limited to experienced refrigerating engineers. Nevertheless, it was shown that stronger ammonia and spirit of ammonia could be prepared at a considerable saving, and it was then assured that these preparations would be of the full strength essential in the making of Liquid Petrox and numerous other preparations.

Great care should be taken in the selection of the alcohol and the stronger ammonia water used in Liquid Petrox, for if the ammonia water has lost part of its strength, and the alcohol is not U. S. P. standard, the finished preparations will be unsatisfactory and may be of numerous varied colors.

Considerable criticism was made of the idea of having so many preparations combining Liquid Petrox with medicaments where no technical skill was required to mix, and burdening the National Formulary in this manner.

A motion, therefore, was made wherein it was recommended that the National Formulary have but one basic Liquid Petrox preparation, that under its subject matter, statements be made showing that various medicaments readily soluble therein, that in certain percentums they are best fitted for dispensing in said basic preparation, and that in the event a physician prescribes one of the medicaments listed, failing to state the strength he wishes, the strength recommended under the subject matter of Liquid Petrox be dispensed.

In the samples of Iodine Petrox, 5%, presented, crystals of Iodine were present and a

sediment of Ammonium Iodide and Iodate was in the bottle. The 10% solution was in almost the same condition.

A new formula for the 10% Iodine Petrox was suggested, as follows:

Iodine	10.
Alcohol	15.
Acid Oleic.....	15.
Liq. Petrox, qs.....	100.

The sample of Iodoform Petrox was wholly unsatisfactory. Free iodine was present and a distinct odor of acetone was distinguishable.

Attention was called to the improper naming of Sulphur Petrox, which should be called Balsam of Sulphur Petrox; and Compound Sulphur Petrox, which should be named Compound Balsam of Sulphur Petrox.

Attention was invited to the fact that both iodoform and sulphur when mixed with solid petrox, made excellent extemporaneous preparations and can be most successfully dispensed in that manner.

The samples of solid petrox made according to the proposed formula were unsatisfactory as each had separated into layers.

The following formulas, both of which have been successfully made and used, were presented:

(1) Paraffin	25.
Liq. Petrox	20.
Woolfat (anhydrous).....	10.
Oleic Acid	3.2
Oil Lavender	3.
Alcohol	5.
Stronger Ammonia	5.
(2) Spermaceti	20.
White Wax	15.
Liq. Petrox	20.
Oleic Acid	3.2
Oil Lavender Flowers.....	3.
Alcohol	5.
Ammonia Stronger	5.

A modified formula for Mercury Petrox, the sample of which made according to the proposed formula being unsatisfactory, was proposed by Dr. Hilton, as follows:

Mercury	30.
Oleate of Mercury.....	2.
Anhydrous Woolfat	13.
Solid Petrox	55.

Triturate the mercury with the oleate of mercury in a warm mortar until globules of the intimately distributed metal are no longer visible. When the mixture is examined under a lens magnifying ten diameters, incorporate the woolfat, and then the solid petrox-olin thoroughly.

Dr. Flemer then read a paper on the derivation of the word "Elixir," and cited numerous authorities to show that the derivation is uncertain and the meaning varied. Several criticisms were made of the United States Pharmacopeia, and National Formulary for not containing a definition for this word and hope was expressed that the deficiency would be remedied.

A motion was made that the title Essence of Pepsin be changed to Elixir of Pepsin and Rennin Compound, with Essence of Pepsin and Elixir of Pepsin as synonyms. This recommendation supersedes that made in the January meeting relative to the name of this preparation.

HENRY B. FLOYD,
Secretary.



CITY OF WASHINGTON BRANCH

(March Meeting)

The March meeting of the City of Washington Branch was held March 13, 1912, at the National College of Pharmacy, Washington, D. C., and at the suggestion of President Flemer there was a general discussion of the merits of fluidextracts as preparations. Mr. Flemer, from his own experiences, believes that the fluidextracts of the U. S. P. and N. F. are impracticable to make in small quantity, and can seldom be satisfactorily diluted.

Dr. Kalusowski, Dr. Kebler, and Mr. Wilbert recited their views in the matter, all concurring in the belief that all the fluidextracts with the exception of about six, were not a credit to American pharmacy, and merely offer an opportunity for making tinctures, infusions, decoctions, syrups and other preparations in a manner not sanctioned by the U. S. P. or the N. F. Especial attention was invited to fluidextract of digitalis, as an example in support of this latter statement. It was stated that physicians are discontinuing the use of infusion of digitalis, because they can not get the results expected, and merely because the pharmacist makes the infusion

from the fluidextract. The product made from the leaves is entirely different from that made from the fluidextract, and therefore the expected results could not be obtained.

Strong protest was made against the policy of manufacturing pharmacists giving formulas for making tinctures, infusions, syrups, and other preparations on the labels of bottle containing fluidextracts. It was pointed out that the original fluidextracts were intended for internal administration, without dilution, but that this idea in their manufacture had long ceased to exist, and the tendency now is to produce a basic preparation for the making of other preparations of the same drug.

It was stated by Dr. Kalusowski that more fluidextracts were consumed by patent medicine manufacturers, than in any other way, and the next largest use for such preparations was for preparing compressed tablets.

Following this discussion a motion was made, and carried, that the addition of fluidextracts to the U. S. P. or N. F. be discouraged.

Fluidglycerates were then considered. The consensus of opinion was that there was little need for such preparations in the U. S. P. or in the N. F., and that they would not make desirable additions thereto. Of the samples of the fluidglycerates proposed for the National Formulary, which had been prepared by Dr. Hilton and submitted by him for the inspection of the branch, glycyrrhizæ appeared the most useful and elegant. A slight excess of ammonia was noted, although Dr. Hilton expressed his opinion that more ammonia was required.

A motion was made, and carried, that the City of Washington Branch deprecate the addition of any preparation or preparations to the National Formulary for which there is no actual demand and but little use, and that as fluidglycerates fell under this class of preparations, it was recommended that they be not added to the list of preparations to be included in that work.

The next meeting of the Branch was ordered to be held on April 10, 1912, at the National College of Pharmacy, and be devoted to a discussion of the granular salts proposed for the National Formulary, and to the reading of papers on Glycerin and Bees' Wax, by Mr. Fuller, and Dr. Keblor.

HENRY B. FLOYD, Secretary.

PITTSBURGH BRANCH.

The March 12th meeting of the Pittsburgh Branch was again favored by a good attendance of students, while the excellent promise held out by the program brought together a number of representative men in pharmacy, among them Dr. J. H. Beal, General Secretary of the American Pharmaceutical Association, and Editor of the Association Journal.

Dr. A. F. Judd suggested that the holding of the meetings on Tuesday evening interfered materially with the attendance of the senior students, many of whom are much interested in the work of the Branch, and submitted a proposition in writing, as required by the by-laws, to be acted upon at the next meeting, fixing the second Friday of each month as the time for the regular meetings hereafter.

A communication was read from the President of the National Association of Pharmacologists, accompanied by a draft of a proposed act of legislature providing for reciprocity in registration of pharmacists between the states. An interesting discussion followed as to the wisdom of this Branch acting thereon as requested, during which Dr. Beal stated that while he favored reciprocity in registration, he did not think the form of bill proposed would meet the situation. In this view Dr. Emanuel, President of the Pennsylvania State Board, warmly coincided. The communication was received and placed on file.

Dr. Emanuel presented a valuable paper bearing upon the proposed Richardson amendment to the Federal Food and Drugs Act. In the course of his paper Dr. Emanuel says:

"Now is the accepted time for the parent body, the A. Ph. A., to make good its aim to suppress empiricism, and to restrict the dispensing and sale of medicines to properly educated druggists and apothecaries, as expressed in paragraph five of its constitution. Here is an opportunity that will not come soon again, for this bill will surely prove a solar plexus blow to proprietary and secret medicines. All legislation should aim to protect and benefit the ultimate consumer, and this is certainly the aim of this bill. I would like to have the pharmacists wake up and take enough interest in the bill so that when properly amended it will, as a secondary re-

sult, take care of their interests and, at the same time, keep medical practitioners from added aggressiveness."

Dr. Emanuel then suggested several important amendments, among them that the term misbranded shall apply "If the compounder or vender thereof is not authorized under the law of the state or community to practice pharmacy where the article is produced or offered for sale directly to the consumer." "When represented to the public in any manner as having any remedial property which cannot be substantiated by authorities on medicine, therapeutics or pharmacology." "If any statement or expression of opinion concerning its physiological, therapeutic, remedial or nutritive property be made or promulgated in any manner so as to deceive or mislead the purchaser or the prescriber."

Dr. Kutscher insisted that the bill in its present shape would prohibit the sale of a large number of the most commonly used and innocently sold drugs by the pharmacist, and for which there exists perfectly legitimate uses.

Dr. Beal said: "The bill evidently does not meet the intention of its author, as can be readily seen by the language used in its construction. I am free to confess that if some of the indefinite provisions were eliminated or corrected, I strongly favor the bill. The provision permitting U. S. P. and N. F. preparations to differ from the official formula when so stated on the label is the same as in the present law, and is necessary, but should be guarded by amendment to prevent abuse. Experience under the present Food and Drug Law clearly shows that the privilege has been exercised more frequently for fraudulent than for righteous purposes. Permissible variation is oftentimes a necessity, as, for instance, where an article is intended for purely technical or commercial purposes, and not for medicinal use, and the word *technical* conspicuously placed upon the label should be sufficient. Where the spirit content constitutes the variation it could be clearly expressed by stating the percentage of alcohol present."

Discussion of proposed N. F. formulas was participated in by Drs. Kutscher, Saalbach, Judd, Koch and Emanuel. *Mistura Ferri Salicylatis*, which had been referred to a special committee for experimentation, was

given much attention. Dr. Saalbach reported that a perfectly clear mixture results from the addition of a larger amount of ammonium carbonate than the formula contains, and presented a new working formula for presentation to the committee. Dr. Emanuel suggested that attention should be given to the matter of decomposition and to what changes take place, and why the citric acid and the ammonia are used. Dr. Koch said the latter ingredient is necessary to dissolve the sodium salicylate. Mr. Campbell asked for suggestions as to why this preparation is being given consideration, but none were forthcoming. Dr. Saalbach also presented several samples of the *Petroxolin* preparations, and said that the N. F. process will not produce complete saponification, hence he had resorted to a different method by which a perfectly clear mixture is brought about.

Dr. Judd, who had undertaken to prepare a sample of *Extractum Cinchonæ Liquidum*, said he had repented of his rash promise long before reaching the goal of a finished product. Trouble began at the point where the instructions read, "then allow the percolation to proceed slowly until the Cinchona is exhausted." After having used up something like eight litres of water the point of exhaustion (except in his own person) seemed to be still somewhere in the remote future, while the water was running up the figures on the water meter, and when he realized that his finished product was to measure but one litre, his mind reverted to what was going to happen to the gas meter when evaporation set in, then he got cold feet and threw up the job. He recommended that owing to the impracticability of the pharmacist preparing this formula in the pharmacy it had better be eliminated.

The balance of the time of the session was given over to Dr. J. H. Wurdack who, starting with the crude ore, carried his audience through all the processes involved in the fire assay of ores to determine their value in content of the noble metals. He had a complete outfit of tools, utensils and appliances at hand and at the proper point made each ones use apparent, and was given a very enthusiastic vote of appreciation by his audience.

P. E. PRITCHARD,

Secretary.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

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From Western Wholesale Drug Co., Los Angeles, Cal.
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CARL LANX,

From 1321 Carroll Ave., Los Angeles, Cal.
To 325 New Haight St., Los Angeles, Cal.

LOUIS MAY,

From 7802 Third Ave., Brooklyn, N. Y.
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To 518 Beaver St., Sewickley, Pa.

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To 109 N. Carey St., Baltimore, Md.

OTTO E. ROSS,

From Lily, S. Dak.
To Conde, S. Dak.

DR. HERBERT F. GERALD,

From Technol Cham. Irvt'ion, Boston, Mass.
To 50 Merrimac St., Haverhill, Mass.

LEON LEWIS CYPRESS,

From 523 E. 138th St., New York, N. Y.
To 289 Brook Ave., New York, N. Y.

MAURICE P. SCHWARTZ,

From 2168 Talbott Ave., Indianapolis, Ind.
To 2184 Talbott Ave., Indianapolis, Ind.

L. A. BANDY,

From Homestead, Pa.
To 15th and Ohio Aves., Sebring, Ohio.

ROBERT R. LAMPA,

From 202 Lake St., Hoboken, N. J.
To Care Lehn & Fink, New York, N. Y.

E. T. WINSLOW,

From 2420 Callow Ave., Baltimore, Md.
To Bryn Mawr, Pa.

THEODOR I. SCHEIPS,

From 5201 Evanston Ave., Chicago, Ill.
To 843 Sheridan Road, Chicago, Ill.

HOWARD T. GRABER,

From 727 E. Congress St., Detroit, Mich.
To 636 Trumbull Ave., Detroit, Mich.

M. T. HARRINGTON,

From Box 25, Willows, Cal.
To Box 113, Orland, Cal.

EDWARD S. ROSE,

From Winona, Minn.
To 838 S. 15th St., Cedar Rapids, Iowa.

DALLAS H. NEIL,

From residence unknown.
To Allensville, Ky.

- HENRY B. FLOYD,
From 1016 Massachusetts Ave. N. W.,
Washington, D. C.
To 1840 You St. N. W., Washington, D. C.
- DEANE C. BARTLEY,
From 1013 First Ave., Seattle, Wash.
To 372 Arcade Bldg., Seattle, Wash.
- FRANK S. HERETH,
From 210 E. McCarty St., Indianapolis, Ind.
To 23 Vine St., Brooklyn, N. Y.
- HORATIO N. FRASER,
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THE JOURNAL OF THE
THE A. PH. A. AND N. A. R. D.

WILHELM BODEMANN.

President Godding has called on the Membership Committee of the various states to get busy; being a new broom in this line I must make at least a bluff at it, to do my part.

I shall not work the old racket of "five dollars' worth of Proceedings" for we have made a radical change by doing away with the old fashioned bound volume of proceedings and publishing these in connection with the splendid new JOURNAL OF THE A. PH. A., edited by Doctor Beal, and which goes to all members of the Association. The average druggist, I venture to say, consulted the baseball score more zealously than the old Proceedings, which sometimes reached him fifteen months after the date of the meeting.

But, I appeal to the druggists of Illinois for other and even better reasons to join the A. Ph. A. The N. A. R. D. is made up exclusively of active retail druggists, and rightly so; the A. Ph. A. invites to its membership all men and women, engaged in pharmacy and its related branches—pharmacists, clerks, teachers, editors, manufacturers and dealers in pharmaceuticals are found among its members.

The N. A. R. D. and A. Ph. A. should go hand in hand—a good N. A. R. D. man will round out his *usefulness* by joining the A. Ph. A.—and most A. Ph. A. men will round out their *youthfulness* by taking in the N. A. R. D.—special committees have charge of that part—and this combination, like the old coon trap, will catch them a-comin' and a-goin'.

LEARN HOW MEAN YOU ARE.

Therefore, Brother Retail Druggists, if you wish to meet the "allied interests" on the "Forum of the Convention" join the A. Ph. A.; then you can have it out with them on neutral ground and meeting these men may have the surprising discovery in store for you, that you perchance are as mean as the other fellow, or meaner. Anyway, you get next to them and can have a chance at them.

Why the State of Illinois should be so poorly represented in the A. Ph. A. is a mystery. We raise a good crop of standard-raisers but it looks like fanned-mouthed standard-raising when you see that a great number of the aforesaid standard-raisers have been dropped from the rolls for non-payment of dues, or have never joined, and yet it is admitted by all that the A. Ph. A. stands at the head of the procession for Standard Raisers.

YOU; YES, YOU.

You, who are graduates of pharmacy ask your professors whether or not you should join the A. Ph. A. You, who are not graduates but are acquainted with editors of pharmaceutical journals ask their advice and I am sure they will urge you to join. For further information write me if you wish, or better yet, write to Professor W. B. Day, 74 E. 12th Street, Chicago—and we will all meet at Denver in August and then you can tell me how you like it.—*N. A. R. D. Notes.*

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WILL THE A. PH. A. INVESTIGATE PATENTS?

Doctor Bernard Fantus, Professor of Materia Medica and Therapeutics in the College of Medicine of the University of Illinois, addressed the December meeting of the Chicago A. Ph. A. Branch members on the subject of "Patent Medicines, the Pharmacist's Duty in Regard to Them." Doctor Fantus' address was a powerful presentation of this subject from an ethical standpoint and was most interesting. The echoes of it are still reverberating about Chicago. An interesting outcome is the recommendation that the A. Ph. A. undertake an investigation similar to that of the Council on Pharmacy and Chemistry, of the American Medical Association.—*The Apothecary*.

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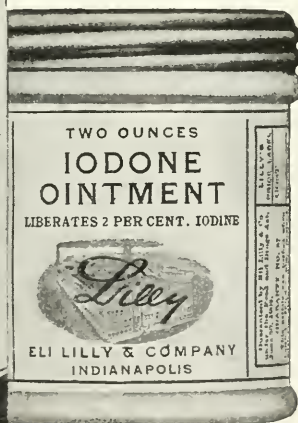
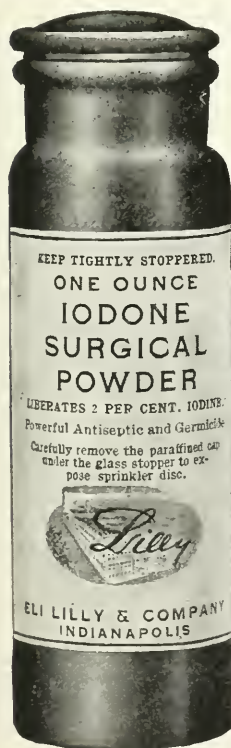
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The druggist who never goes anywhere but to his store makes no friends except such as come to him. He may be a diligent advertiser and a successful merchant but he is falling short of the best success unless he mixes with his fellow citizens. He needs to be in touch with the needs and the movements and the desires of the community at large and he needs to take part in all kinds of affairs promoted for the general good. No man can live entirely for himself and for his own selfish ends and obtain the full respect of others. Of course the man who mixes it up with the rest of the people in his town gets more out of his life and avoids becoming narrow minded. It is easy to keep out of the rut and to see opportunities for increasing business when one has a broader view of life. The man who is a mixer is pretty apt to secure advantage in another way. He will be a member of his state association and other similar organizations working for the general good of the trade. He will in this way come into contact with the men who can give him the best ideas, the men who will inspire him with ambition and fill him with energy. There is no greater stimulus to a man's mind than the contact with the master mind of his kind. The druggist who is not a mixer and who has always hung back, thus being a drag upon any general movement in advance, may well turn over a new leaf and see if he cannot make his personality something more than that of one unit among 45,000 other similar units in the country.

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The Journal of the American Pharmaceutical Association

Volume 1

M A Y , 1 9 1 2

No. 5

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, \$3.00 per annum, within the United States. To Canada, \$3.35. To other foreign countries in Postal Union, \$3.50 per annum. Single copies, twenty-five cents.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

Papers and communications for insertion in the JOURNAL should be sent to the Editor, James H. Beal, Scio, Ohio. Subscriptions should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

PRICE PROTECTION AND THE AGENCY-COUPON PLAN.

THE BEST of all price protection plans is the thorough organization of pharmacists, i. e., the collection of practically all pharmacists into local, state and national associations, and the close knitting together of these various bodies in purpose and sympathy. With such a complete organization of pharmacists almost any plan of protecting prices is feasible; without it no plan will be entirely successful.

The contest between the law which would maintain trade free and profitable for all alike and the efforts of organized business to concentrate it within the hands of a few is a never-ending one. Like the safe-breaker who uses in his tools the materials invented by the safe maker to protect his safes against burglary, so the trade demoralizer uses to drive out his competitor and to destroy competition the very rules of law which were invented to check his depredations.

The doctrine of the common law regulating contracts alleged to be in restraint of trade and in favor of monopoly is an ancient fetish, and while it may have served some useful purpose in an age of less complex business relations, has long since outlived its usefulness.

In fact, as interpreted under modern conditions, the phrase "in restraint of trade" is a euphemistic title for the rule of might over right, since no means has been found so efficient by great aggregations of capital for the destruction of the man of small means as by underselling him until he is driven out of business, and

the market is left in the grasp of those who control the longest purse. The monopolist finds that the losses endured while destroying his small competitors are trifling when compared with the advantage of securing complete and undisturbed control of the business.

The U. S. Supreme Court did not announce a new doctrine of the law when it decided that the lawful owner of goods can legally fix the price at which they may be sold by his agents, and also that when he divests himself of ownership his control ceases. These principles of the common law have been established so long that, in legal phrase, "the memory of man runneth not to the contrary."

What the Supreme Court did establish in the celebrated *Miles* case, decided some months ago, was simply that in the case at bar the relation of principal and agent was only seeming and not real; that the seeming agency was deceptive and that the seeming agent was the owner in fact of the goods in his possession, and therefore entitled to exercise all of the prerogatives that accompany ownership, including the right to fix his own selling price for them.

THE COUPON PLAN.

Trade agreements and selling plans are like automobiles and typewriters in that each addition to the number of parts in the working system increases enormously the break-down risk and the difficulty of keeping the system in effective running order. In other words, that with every additional person, element or detail introduced into a selling plan, the chance of failure increases by multiplication and not by simple addition.

A selling plan, then, should be simple, direct, easy to understand, and not tedious to apply; there should be as few parties involved as possible; and the plan should be one which will be as nearly as possible automatic in operation, i. e., one which will tend to enforce itself without the active intervention of all the parties to the contract.

The coupon plan of compelling a fixed price for the sale of proprietaries has been suggested at various times and in various forms, one form of which has lately been proposed by the N. A. R. D. under the name of the "Boehm plan."

In its simplest form it requires the affixing of a coupon to each serially numbered package, and which is detached at the time of sale, and upon return to the manufacturer or jobber, with satisfactory evidence that the package was sold at the full established price, entitles the holder to a rebate which constitutes his profit on the sale of the goods, the latter having been purchased at full retail price.

In this form the plan is analogous to the plan of enclosing coupons in the package which entitle the purchaser to some premium; it involves a minimum of detail, and if all parties should comply faithfully with the conditions, would perhaps come as near to solving the problem of price protection as anything that could be devised.

Before pronouncing absolutely in its favor, however, we must consider whether the plan runs afoul of the law against combinations or contracts in restraint of trade, and also how far it can be rendered inutile by the exercise of bad faith.

A contract consists of an offer, express or implied, followed by an unqualified

acceptance, express or implied. Both offer and acceptance are essential, and the pact is not capable of enforcement if either be lacking.

In the plan under consideration the offer made by the manufacturer is evidenced by the coupon attached to the bottle or parcel. It is a separate and distinct offer made with each unit package, and not with dozen, gross or car-load lots. The acceptance is evidenced by the resale of the package in accordance with the terms of the coupon, i. e., at full price, and by the return of the coupon for redemption.

The mere acceptance of the goods from the carrier does not constitute acceptance of the offer, because the goods may be obtained with the intention of violating the terms of the agreement, or the terms may be complied with in the sale of one package and violated in the sale of the remainder.

If this reasoning is valid, the contract or agreement is not a general one, but one which arises and is created with each separate sale, and even if 40,000 druggists handle the article, a combination is not produced, since it is open to each one to either accept or reject the offer at the time of each and every sale.

Neither does it seem that the mere presence of the coupon upon the package could be construed as operating in restraint of trade, because it is always open to the owner of the package to either sell in compliance with the terms of the coupon or to ignore them, as he may choose.

THE AGENCY-COUPON PLAN.

As regards simplicity, the coupon plan as above outlined leaves little to be desired, but it does not sufficiently guard against bad faith on the part of some of the parties to the transaction, neither will it prevent the trade demoralizer from selling the goods at less than the stipulated price if he chooses to do so, since he is their actual owner, and "a man may do what he will with his own."

To provide against these defects, and at the same time to make the retailer the real as well as the ostensible agent of the manufacturer, the agency-coupon plan has been proposed, and is the device of Frank H. Freericks, Esq., a member of the A. Ph. A., and special counsel of the N. A. R. D., and is set forth in N. A. R. D. Notes of April 11.

This plan seeks to join the coupon plan with a bona fide agency contract evidenced by written agreements of the retailer and jobber with the manufacturer, and retains the absolute right of ownership in the manufacturer until the retail sale has been made in accordance with the terms of the written agreement, the coupon evidencing the agent's claim for commission.

The plan contemplates the creation of two sorts of agents, distributing agents or wholesalers, and local agents or retailers.

Both distributing and local agents make cash deposits approximately equal to what they are now required to pay for the goods, in proportion to quantities purchased, and the per cent. of commission is proportioned in like manner. The retailer, within a specified time after receipt of the goods, returns to the manufacturer the coupons attached, properly filled out, whereupon the manufacturer notifies the distributing agent of the amount to be allowed to the local agent as commission.

The burden of keeping track of the distribution is thus laid mainly on the

manufacturer, the wholesaler being required only to furnish the goods to the local agent in the manner specified in the contract, and to charge the consignment account.

To persons not accredited as local agents, the wholesaler may sell only single packages, and at full retail price. In such cases the manufacturer may by separate agreement remit the commission to the person after the goods have been resold at full retail price.

The objects sought by this modification of the coupon plan are to make the wholesaler and retailer the actual as well as the ostensible agents of the manufacturer, and to retain the ownership of the goods in the latter until they are actually sold in accordance with the terms of the agreement. As the contract expressly provides that the goods are placed on consignment, the manufacturer can resume possession at any time if the retail agent violates the agreement as to selling price, while the compensation of the agent assumes the form of a commission on goods sold for another instead of a profit on goods of which he has complete ownership. Other details of the plan relate to the times of settlement, rates of commission in proportion to size of purchase, forfeiture of deposit for failure to conform to agency contract, settlement of disputes by arbitration, etc., etc.

While the plan will necessarily need much discussion, and perhaps a legal test before it can be regarded as providing a final solution of the question of price protection by contract, it possesses many attractive features from the retailer's standpoint, and it is to be hoped that proprietors, jobbers and retailers will unite to give it a thorough and honest trial.

J. H. BEAL.

A RATIONAL CALENDAR.

The calendar and the hours of the day seem to most of us almost like part of the natural and immutable order of things, and however much trouble the present indefensible system has caused, men have felt that it was rash—almost impious—to suggest a change in it. "Give us back our eleven days!" cried the mob when the Gregorian calendar was introduced into Great Britain. From the days of Julius Cæsar to our own, he has been a bold reformer indeed who would suggest changes in the disorderly procession of the months. Now enters Moses B. Cotsworth of Victoria, B. C., with a proposal for a rational calendar. He would divide the year into thirteen months, each of twenty-eight days, which would leave one extra day in the year, and this he beautifully plans as a free day for every one—free from interest charges on money, the necessity to work, the wage scale, etc. Then each month would commence on Sunday and the first, eighth, fifteenth and twenty-second days of each month would be Sundays. President Hadley of Yale is quoted as saying that the month of four weeks "will come as a commercial necessity." The adjustment to the change would be very small compared to that necessitated when standard time was introduced on transcontinental railways. Mr. Cotsworth has literature to distribute, poking fun at the present system. If he wins, school children need no longer learn: "Thirty days hath September."—*Jour. Am. Med. Assn.*

Book Reviews

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA (Eighth Decennial Revision) and on the NATIONAL FORMULARY (Third Edition) for the calendar year ending December 31, 1909. By Murray Galt Motter and Martin I. Wilbert, Washington, Government Printing Office, 1910. Published as Bulletin 79, Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service.

Beyond a doubt this is one of the most valuable publications in existence for the busy chemist who wishes to keep reasonably in touch with the work that is being done along pharmaceutical, medical, and chemical lines of work, in all parts of the world. This is the fifth volume to appear, and like the previous ones, is very complete, containing articles abstracted from 237 publications and 23 pharmacopœias.

From the standpoint of a State Food and Drug Chemist, this is an exceedingly valuable reference book, as one can see at a glance the work that has been done along drug lines, for any year, since the beginning of the Digests, and which covers a much wider scope of scientific literature than the average chemist has at his disposal.

The general plan of the book remains very much the same as in previous ones, the scope, if anything, being slightly enlarged, the present volume containing 730 pages of abstracts, and containing between 7000 and 8000 abstracts and tables, covering a very wide range of subjects, and giving in each case the name of the author, the reference to the original publication, and a concise, unbiased abstract of the contents.

Bulletin 79 of the Hygienic Laboratory is free to any one interested in such a publication, and no scientific library is complete without one on its shelves.

LINWOOD A. BROWN.

OOOO

It was certainly a bit of good fortune that, when the work on the former "Digest of Criticism" was to be resumed, the Hygienic Laboratory offered its coöperation. Valuable as was the "Digest of Criticism," inaugurated by the late Dr. Charles Rice, to the active members of the Revision Committee of the U. S. Pharmacopœia, it was valuable primarily to those who were content with a partial review of the subject. To those who were content with nothing but complete information on a given subject, it served but as a partial check on their own bibliography.

To the pharmaceutical scientist, the "Digest of Comments" is not a working collection of abstracts, it is a catalogue somewhat after the supplemental volumes to the "Beilstein" of the organic chemist. Hence its principal merit lies in its completeness as such a catalogue of references.

No doubt, some believe that this desire for completeness is carried too far when mere opinions are recorded as well as observations and results of experiments.

The writer cannot share this belief, though he may have his own ideas about the mere opinions of others.

Thus e. g. one author is quoted as having stated "that the oil of chenopodium must be judged entirely by its physical characters, as the constants and tests have been entirely omitted in the corrected editions." Another author "points out that as this is an American product, no difficulty should exist that would prevent the preparation of authentic samples and the establishment of correct descriptions and tests." These two opinions are followed up by a record "of physical characters" conspicuous by the absence of chemical "constants" and "tests." Yet even such opinions, the expression of which demands less time and labor than the determination even of specific gravities, angles of rotation, and solubility, though made by persons ignorant of the specific problems involved, may do some good, and hence should be recorded. They will not cover the defects, but by calling attention to them they may emphasize the necessity of trying again. If, in addition, they had but brought out the fact that this "American product" has been studied principally by foreigners, to whom we are almost exclusively indebted for the little we know about it, then possibly the stigma resting upon us as American scientists who are after the dollar and professional glory more than after the discovery of truth might have been brought home with more effect. Even the undergraduate student who prepares a bibliography of a pharmacopœial item is struck with the amount of rubbish that he has to record from American pharmaceutical journals in order to make his bibliography complete.

However, the true scientist will welcome any and all suggestions and criticisms and will try to meet them as best he can. The above selections are quoted at random simply because the book seemed to open at the particular page and because they illustrate as well as any others the care taken by the editors to present all points of view on a given subject. That they have not reserved to themselves the editorial prerogative of quasi critical selection should be mentioned to their credit. All that the scientist asks for is that he find practically everything and that he thus be relieved of the necessity to search for himself.

As to the teacher's point of view, this the writer can best explain by stating that in the University Dispensary and affiliated laboratories the "Digest of Criticisms" has a place side by side with the dispensaries next to the U. S. Pharmacopœia and National Formulary. If the dispensaries are commentaries on the U. S. P. and N. F. then the "Digest of Comments" is the latest annual commentary which often throws light on a pharmacopœial problem where the large tomes fail to do so. Hence, in a way at least, the "Digest" is even more valuable to the student working at pharmacopœial problems than the more pretentious dispensaries. While the information in the established text is more or less crystallized, that of the "Digest" imparts life as it were, even though the information imparted be merely that of a personal opinion. This is a very important factor in the training of a student especially in a country like ours where the authoritative text book is doing so much harm.

EDWARD KREMERS.



When Motter and Wilbert, men well known to the pharmaceutical and medical professions, began the compilation of Comments on the U. S. P., VIII,

during the year 1905 and published same in March, 1909, as Bulletin No. 49 of the Hygienic Laboratory it consisted of 295 pages. The second volume also included the comments on the National Formulary during 1906 and contained 523 pages. How thorough and careful the literature of the entire civilized world has been reviewed is shown by the size of the present volume, the fifth of the series of "Digests," which contains 735 pages. The list of the literature reviewed occupies seven pages printed in small type.

The work is arranged in three parts:

I. General Comments, embracing legal status, scope, nonpharmacopœial standards, analytical data, biologic products, vegetable drugs and pharmaceutical preparations. As diagnostical tests are to be included in U. S. P. IX, therefore the compilers of the present bulletin have also added a chapter on "Clinical Tests," containing the most important references as to their nature and uses, in the literature during 1909. How complete this part of the bulletin is can be judged from the size of the chapter, namely nine pages, four of which are devoted to urine analysis. This information should prove very useful to the officers of the U. S. Public Health and Marine Hospital Service, to the members of the U. S. P. and N. F. Revision Committees, to laboratory workers, to medical men and also to pharmacists.

II. International Standards, containing references to the Brussels Conference and Protocol and to the foreign pharmacopœias. We take notice that among these the British Pharmaceutical Codex, published by the Pharmaceutical Society of Great Britain, is also included, although not a pharmacopœia. We would therefore make the suggestion that the "Ergänzungsbuch," the supplement to the Deutsche Arzneibuch, the third edition of which has been published in 1906 by the Deutsche Apotheker-Verein, be also included in this list. This part contains many very useful tables, f. i., degree of compliance with provisions of Brussels Conference, survey of compliance with these provisions and official medicinal and potent wines.

III. Comments on Official Articles. This most important part of the book occupies 550 pages, and it should quite especially appeal to the practical retail pharmacist who is interested in the U. S. P. and N. F. and their galenical preparations. The latter are commented on, as far as possible, under the official name of the drug or chemical, but groups of galenicals are properly given under their respective titles as Aqua, Elixir, Liquor, Tinctura, Unguentum, etc. As a reference work the practical pharmacist will find this part of the book very valuable indeed, as it will acquaint him with the improvements made in the galenical preparations. It is also a pleasure to notice that the many references on almost every page show that they were abstracted from *Proc. Am. Pharm. Ass.*, 1909, v. 57, thus proving what a mint of pharmaceutical knowledge our proceedings contain. Let us hope that in the "Digest of Comments" for 1912, the JOURNAL A. PH. A. will also occupy such a prominent place.

Pharmacists and others interested in the "Digest of Comments" can secure a copy of Bulletin No. 79 up to the limit of free distribution by applying to the Surgeon-General of the Public Health and Marine Hospital Service, Washington, D. C., or for a nominal sum the Bulletin can also be obtained from the

Superintendent of Documents, Government Printing Office, Washington, D. C. It should also be remembered that the receipt of the Bulletin should be acknowledged, which is taken as an indication of interest and the continuing of his name on the mailing list.

OTTO RAUBENHEIMER.

OOOO

OLD-TIME MAKERS OF MEDICINE. The story of the students and teachers of the science related to medicine during the middle ages. By Dr. James J. Walsh, Professor of Nervous Diseases and of the History of Medicine at Fordham University, School of Medicine. One vol., pp. VIII, 446. Fordham University Press; New York; 1911.

The appearance of the above title in a pharmaceutical journal might suggest that the "Old-time Makers of Medicine" is a history of early pharmacists. But such is not the case. Again, it might be supposed that reference is had in the volume to the early physicians as the compounders of their own medicaments. But such, too, is not the case. The "makers of medicine" referred to are not the makers of medicaments, but the founders of the science and profession of medicine. Yet there is sufficient pharmaceutical material between the two covers to justify a brief review in a pharmaceutical journal.

To begin with, the outward appearance of the volume and the printed page are attractive. When one begins to read, the style is likewise found attractive. The author disclaims originality, giving credit to German and French medical historians as the sources of his information. The style is rather that of the popular essayist than that of the erudite student of medical history. One might well quote Hoefer's "Avant-propos" to his "La chimie enseignée par la biographie de ses fondateurs," with which Welsh's tome is comparable in other respect as well, viz: "Instruire, plaire et donner à penser, tel est le problème que nous sommes proposé de résoudre en écrivant ce volume."

While it cannot be said that the author has made any special effort to please, it becomes apparent from almost every page that he desires his readers to think. The themes to which he directs their thoughts most are these: that the scientific spirit is not a psychological development of the nineteenth century, that much of what is supposed to be new in medicine is not original, but rediscovered, and that even the dark ages were not as dark as they are often thought to have been. He points to a sufficient number of isolated instances of enlightenment that go back far enough so as not to come in conflict with any stereotype notion of when the dark ages ended and the renaissance began.

From what has been said the pharmacist cannot go amiss expecting to find pharmaceutical history in this volume. Yet the "story" of the old-time makers of medicine is told in so non-technical a style that the pharmacist as well as the general reader may find much of interest between the two covers. However, here and there one gets glimpses even of pharmaceutical history. Inasmuch as Italy was the home of the modern European apothecary shop, the following paragraph from the chapter on "Mondina and the Medical School at Bologna" may here be quoted:

"Mondino came from a family that had already distinguished itself in medicine at Bologna. His uncle was a professor of physics at the university. His father, Albizzo di Luzzi, seems to have come from Florence not long after the middle of the thirteenth century, for the records show that, about 1270, he formed a partnership with one Bartolommeo Raineri for the establishment of a pharmacy at Bologna. Later this passed entirely under the control of the Mondino family, and came to be known as the Spezieria del Mondino. In it were sold, besides Eastern perfumes, spices, condiments, probably all sorts of toilet articles, and even rugs and silks and feminine ornaments. The stricter pharmacy of the earlier times developed into a sort of department store, something like our own. The Mondini, however, insisted always on the pharmacy feature as a specialty, and the fact was made patent to the general public by a sign with the picture of a doctor on it. This drug shop of the Mondini continued to be maintained as such, according to Dr. Pilcher, until the beginning of the nineteenth century."

Though not a contribution to the history of medicine in the sense of historical research, it is a valuable contribution in this respect that it will turn the attention of thousands of readers to the historical development of medicine. Even if the style of presentation were not as pleasant as it is, the author's controversial writings on the subject of the history of the medical sciences would be certain to secure for himself and his book an audience of no mean size.

EDWARD KREMERS.



REPORTS OF THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION. Volume 4, January-December, 1911. By W. A. Puckner, Director of the Laboratory. Press of the American Medical Association (Chicago).

This 8vo volume of 127 pages includes the reports of the work done in the Chemical Laboratory of the American Medical Association during the year 1911 and should be of special interest to drug analysts and druggists generally. The contained material is grouped under three headings: I. Reprints of contributions; II. Reports abstracted from the Journal; III. Reports not previously published, and varies in nature from a general discussion of the proprietary medicine business in the United States to reports of analyses of secret remedies on the one hand and to the establishing of standards for little used medicaments on the other.

Even a cursory review of the contents of the book evidences the fact that it represents the character of work that should be done by the pharmaceutical associations of this country and, with the preceding volumes, it may well serve as an incentive for the future development of pharmacy along professional lines.

It is to be regretted that with our present day lack of appreciation, in pharmacy, of Association work along professional lines, considerable time must elapse before we can expect to do work along the lines fostered by the "Apotheker Verein" in Germany or by the American Medical Association as reflected in the report under discussion. For the more rapid development of the professional spirit in American pharmacy it is sincerely to be hoped that this little volume will be studied by all members of the American Pharmaceutical Association who are in any way interested in the professional side of their calling.

M. I. WILBERT.

NEW AND NONOFFICIAL REMEDIES, 1912. Containing descriptions of the articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1912, Chicago. American Medical Association.

The up to date and progressive pharmacist has long since become acquainted with this annual publication of the American Medical Association. In addition to being an enumeration of the articles that have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association as complying with its rules, this book also contains descriptions, tests and standards for practically all of the more widely used nonofficial remedies. As a source of useful information regarding the newer materia medica, N. N. R. is perhaps unexcelled by any book of reference in the English language, and no active dispensing pharmacist can well afford to be without it

M. I. WILBERT.

THE PRIMAL ISSUE.

A correspondent of the Chicago Record-Herald divides all the world into two parts, thus:

"There are two distinct types of mind, or spirit: One is beneficent, benevolent, altruistic, interested in the truth, but unskilled in turning things to one's own personal advantage. The other has the underlying instinct to turn every movement of society to its own pecuniary advantage."

The first social or political issue ever suggested to the human race was when Cain, the murderer, answered the Lord, "Am I my brother's keeper?" Cain's idea was that he was not, and ever since then a very large portion of the human race has inherited his idea. Cain got mad at Abel because the Lord favored him and accepted his sacrifice. Why? Because Cain's life was not in accordance with his professions.

We see these days so many people jealous of others on account of the others' success; but that success came because they did the right thing, lived clean and wholesome lives; their sacrifices were accepted, not because the lambs were better than the fruits, but because they themselves kept sober, honest, diligent, upright, and just. It depends upon what a man is, whether his sacrifice is accepted or not. Abel himself was noble, pure, honest and square, and because he was so, the Lord favored him and Cain slew him. So runs the world. There is still murder in the garden of Eden.—*Ohio State Journal*.

Contributed and Selected

A DISTURBING FACTOR IN OPIUM ASSAYS.

CHAS. H. LA WALL.

The present official method for assaying opium with its safeguard of the lime water correction has been looked upon as giving results as nearly correct as our present scientific knowledge could expect, considering the variable character of the substance assayed, but I have recently been confronted by a condition which is alarming in its possibilities.

A sample of high assaying opium (about 21% morphine) which had been largely diluted with milk sugar, was submitted for assay, together with some of the original material, the directions being to assay by the U. S. P. method and report results.

Of course, the use of 10 Gm. of an opium assaying over 20 per cent. of morphine would yield an amount of morphine far in excess of that contemplated by the assay process given in the U. S. P. and trouble was looked for in this direction. While some difficulty was encountered in getting a pure morphine on account of the large bulk of the precipitate, closely agreeing duplicates were obtained, which were probably very close to the truth. In the assay of the sample, however, in which 5 Gm. of milk sugar had been added to 5 Gm. of the opium (10 Gm. being directed to be taken) most astonishing results were obtained, which upon examination the conditions could be easily explained.

The duplicates showed results varying from 1.240 Gm. to 1.765 Gm. of crude morphine (corresponding to nearly 40% of morphine in the original opium in the higher figure), and the lime water correction factor being practically unweighable, the results would naturally have been reported as pure morphine had it not been for their extreme abnormality. Upon titrating the residues with tenth normal acid, correct results were obtained and further investigation showed that milk sugar, when present in such an abnormal proportion as that above given, separates with the morphine in the assay process and being soluble in lime water is liable to be reported as morphine unless the additional safeguard of titrating the residue is employed.

The results are somewhat irregular in that the milk sugar does not always precipitate (owing probably to varying temperature conditions, as lower temperatures give higher apparent results), nor does it always precipitate to the same extent in duplicate assays, but since it does sometimes interfere, as is shown by the foregoing results, it would seem necessary to take the possibility into account in the next official assay process.

ANALYTICAL LABORATORY OF C. H. LA WALL, PHILADELPHIA.

THE RELATIVE STRENGTH OF FRESH AND OLD SAMPLES OF THE
FLUID EXTRACT OF ERGOT.

CHAS. C. HASKELL AND CHAS. R. ECKLER.

The importance of having medicinal preparations of constant strength can not be overestimated. Many factors over which the physician has no control of necessity arise when patients are treated with drugs, and if the drugs administered are of unknown and variable strength, truly rational therapy is impossible. Fortunately, chemical investigation has been so fruitful of results that most of the important drugs used in therapeutics can now be standardized with great accuracy.

Even if preparations are of definite strength at the time of manufacture, however, the question arises as to whether deterioration can not occur before their employment. It is well known that in aqueous solutions some of the alkaloids rapidly decompose. Careful examination⁽¹⁸⁾ has shown, however, that most galenical preparations which are susceptible of chemical assay retain their strength undiminished for a number of years.

Unfortunately, there is a group of drugs for which no chemical assay method is commercially practicable. Most important of this group are the cardiac tonics while ergot is of scarcely less moment.

Since ergot can not be standardized by chemical means, it is easy to understand why attempts have been made to estimate its strength by observation of the effect of the drug upon lower animals. The question of deterioration being so obviously dependent upon standardization, it seems necessary to consider briefly the three methods commonly employed in the attempt to produce preparations of uniform strength.

Practically all recent investigators have observed that fresh ergot preparations have a distinct pressor activity. Dixon,⁽⁶⁾ apparently, was the first to utilize this action to measure the therapeutic efficiency of the drug. He states: "I have found, however, that rise in blood-pressure in mammals is proportional to the effect upon the uterus." He advocates the use of rabbits, injecting the drug into the femoral vein and recording the carotid blood-pressure by means of a mercury manometer.

While Dixon's paper was very brief and incomplete, Wood and Hofer⁽²⁰⁾ have studied the pressor activity of a number of commercial samples of ergot with great thoroughness. They, too, consider that the actions upon the blood pressure and upon the uterus are parallel. They believe that: "There can be little doubt but that the increased contractions of the uterus and the vasomotor stimulation are part of a widespread effect of the drug, involving all involuntary muscle. * * * and the changes in the circulations, in the intestines, and in the uterus are but a part of one general action." This being the case, they maintain that a measure of the pressor action of ergot enables us to estimate the value of the drug as an oxytoxic.

In an earlier paper, Wood and Hofer⁽²¹⁾ pointed out that the use of ergot need not be limited to obstetrical practice. It is certainly true that a measure of the

pressor activity of the drug upon lower animals would probably be a measure of the value of ergot as a circulatory stimulant for man, but it would seem that, in the light of both recent and early research, the objection to the use of an observation on the vasomotor action of ergot as a criterion of its oxytotoxic power is decidedly a valid one.

Dale ⁽⁴⁾ has found that there is no constant relation between blood-pressure and uterine effects when the drug was administered to a monkey. "In the cat, too, there is no distinct relation between the two sets of effects; some cats in which the blood-pressure effect was comparatively small, showed marked uterine effects and vice-versa."

In examining a number of commercial preparations of ergot, Goodall ⁽⁹⁾ also found that the absence of pressor activity did not justify one in assuming absence of power to affect the uterus. He concludes: "Whereas 42 per cent. of commercial samples caused contraction of the uterus without effecting a rise of blood-pressure, the action on the uterus might be regarded as a more satisfactory test by the manufacturer."

Finally, Edmunds and Hale, ⁽⁷⁾ after making a very careful comparison, have come to the conclusion that there is no essential parallelism between the two actions.

While Goodall's work is open to adverse criticism, the results secured by such men as Edmunds, Hale, and Dale must be considered as reliable and it would seem that some investigators have acted rather hastily in establishing arbitrary standards and making wholesale condemnations of commercial preparations without reporting a single experiment in support of their statements as to the parallelism between blood-pressure and uterine effects.

The recent work of the English investigators offers an explanation as to why ergot may cause uterine contractions and yet fail to show pressor activity. Ergotoxine, para-hydroxyphenylethylamine, and B-isoamylamine excite the uterus to contractions and bring about an elevation of the blood-pressure. B-iminazolyethylamine, however, is capable of causing intense uterine tetany, and, under proper conditions, a marked *fall* of systemic blood-pressure.

While not essential, it is certainly advantageous to observe on lower animals the therapeutic action of the drug to be standardized. It seems most rational to attempt the standardization of the cardiac tonics by noting their effects upon the heart of the experimental animals; and, likewise, if the effect of ergot upon the uterus of a cat or some other suitable animal could be satisfactorily recorded, it would probably furnish a rational means for standardizing this drug. Numerous investigators have studied the action of ergot upon the uterus in various functional conditions, but, at present only two uterine methods are employed commercially.

Kehrer ^(13, 14) believes that the isolated uterus of a virgin cat offers an ideal object on which to standardize ergot. His method is simple in technic, but it would be extremely difficult to secure suitable animals in sufficient numbers for commercial standardization. Moreover, the light which recent chemical and physiological work has thrown upon the ergot question, enables us to see grave objections to Kehrer's method. In the first place, the important alkaloid, ergo-

toxine, in a pure state is insoluble in water, and Kehrer's test is, of necessity applicable only to the water-soluble constituents. Then, of the amines present, two have an action similar to adrenaline in causing inhibition of the non-pregnant uterus. Edmunds and Hale⁽⁷⁾ have found that there are serious practical disadvantages in the use of the excised uterus, the chief one arising from an increasing irritability of the organ, so that the employment of a solution of ergot which was too weak to have any effect at the beginning of the experiment later on would cause distinct contractions.

Edmunds⁽⁸⁾ was the first to make practical application of the method in which the movements of the uterus *in situ* are recorded. This method is obviously not simple and introduces the same theoretical disadvantages which were mentioned in discussing the isolated uterus method. Edmunds and Hale⁽⁷⁾ find, however, that quite accurate results can be secured by perseverance and are inclined to consider this the most reliable method employed; an opinion in which Cushny⁽⁷⁾ apparently concurs.

Finally, there is the much used and much abused cock's-comb method. As far back as 1824, Lorinser⁽¹⁴⁾ noted the production of cyanosis in the comb of cocks to which ergot had been administered, and Kobert, Grünfeld,⁽¹⁰⁾ and others made use of this phenomenon in studying ergot. Houghton,⁽¹¹⁾ however, was the first to make a practical application of it in attempting to standardize commercial preparations of the drug.

The cock's-comb method has, apparently, been employed by two classes of men in recent years. First, those who, believing implicitly in the efficiency of it as a method of standardization, have used it blindly without carefully investigating its worth. Second, a number of investigators who seemed to have paid too little attention to the attempt to secure uniform conditions, a factor of such great importance in any method of physiological assay.

Wood and Hofer⁽²⁰⁾ are inclined to consider the cock's-comb test of no value. They point out that there is "a wide biological gap between man and the chicken and the fact that the effect studied is a toxic one." Later, they say that they have made fifty experiments upon the rooster with such unsatisfactory results as to convince them that this method is too inaccurate to be of utility.

Cronyn and Henderson⁽³⁾ concur in this opinion. They do not adduce any experimental evidence of their own in support of this contention, except reports of tests by them of preparations "of the one large pharmaceutical house whose preparations are supposed to be standardized by the same method."

The objection that "a wide biological gap exists between man and chicken" can have force only with those who fail to grasp the underlying principle of standardization. We wish to measure the oxytoxic principle in ergot, and it does not matter in what way it is measured if the measure be accurate. It certainly would seem that "a wide biological gap" exists between man on the one hand and the analytical balance on the other, yet this is not considered a sound reason for discarding methods of chemical assay.

Nor does it seem to us that the fact that the action upon the cock's comb is a toxic one proves the method defective. Lethal dose methods are sometimes accurate, and moreover, it is not so evident that the cyanosis of the comb is any

more a "toxic" effect than an elevation of blood-pressure 50 millimeters or stimulation of the uterus to marked contractions.

As Edmunds and Hale ⁽⁷⁾ have pointed out, Cronyn and Henderson are in error concerning Dale's statements as to variation in individual fowls of the same variety, since Dale ⁽⁵⁾ evidently used no one variety exclusively. The fact that preparations standardized by the cock's comb method seem inert when tested by Cronyn and Henderson is obviously no reason for criticizing the method, because there is apparently no way of knowing how old these preparations were when tested the second time.

In Wood and Hofer's fifty experiments, no mention is made of the number of fowls used; of the age, breed, or method of administration. It would certainly seem advisable for them to present full data before recommending the elimination of a method which has so much in its favor.

It remained for Edmunds and Hale ⁽⁷⁾ to take the first important step toward a solution of the question as to the best method available for commercial standardization of ergot. In their paper already quoted from, a careful comparison of various methods was made, and a striking similarity was found to exist between the results of tests upon the cat's uterus in situ and of tests upon fowls.

As would be expected, varying results have been secured when the question of deterioration of ergot was investigated by different methods. It is very surprising, however, to find that when presumably the same method was used by different men, variations fully as great appear in the results.

Grünfeld ⁽¹⁰⁾ was, so far as we can learn, the first to report systematic observations bearing upon the keeping qualities of ergot. His tests were made upon fowls and pigs, the drug being given per os. As the result of his experiments, he concluded that ergot, either powdered or in a natural state rapidly lost its activity and was practically worthless six months after the harvest. He also draws attention to the fact that the outbreaks of "ergotism" usually occur in the summer and autumn, when the ergot is fresh.

There are several features of Grünfeld's work, however, which allow opportunities for error. In the first place, his method of administration introduces the question of absorption from the gastro-intestinal canal. Secondly, he did not secure a stock of ergot and age it himself, making tests at various intervals, *but secured small lots as he needed them for testing*, assuming that their activity was the same throughout originally. Then, he disregarded the fact that seasonal variation may play an important part in the susceptibility of animals to poisons. Thus, Hunt ⁽¹²⁾ has shown that guinea pigs and mice vary in their resistance to acetonitrile according to the season of the year, and Südmersen and Glenny ⁽¹⁹⁾ find that the susceptibility of guinea pigs to poisoning by diphtheria toxin shows a similar variation. In our own laboratory, we have found a seasonal variation in guinea pigs and frogs when the heart tonics are used as toxic agents. While fowls may not show this seasonal variation, still the suspicion exists. Finally, he seemed to consider the death of the fowl as the end point, often disregarding temporary bluing of the comb.

Using practically the same method, Meulenhoff ⁽¹⁵⁾ reached very different conclusions. He believes that ergot kept under suitable conditions retains a considerable amount of activity for as long as five years.

Kehrer,⁽¹⁴⁾ using the isolated uterus method, reaches conclusions approximating Grünfeld's. He states: "From this comparative investigation, it is evident that ergot, as preserved by the apothecary, in one year deteriorates 7-8 times; in two years, about 15 times."

Wood and Hofer⁽²⁰⁾ also find that ergot rapidly loses strength. By observations upon the blood-pressure and by determination of the "sphacelotoxin content" these authors conclude:

"8. A fluidextract of ergot exposed to the air deteriorates extremely rapidly.

"9. The deteriorations of fluidextract of ergot may be much retarded by protecting it against contact with the air, but under the most favorable conditions there is a loss of strength approximating 10 per cent. a month."

If ergot loses in strength as rapidly as some of these authors believe, it is obvious that little can be expected of commercial preparations of the drug. When it is realized that Russian ergot does not reach the American manufacturers usually under six months after the harvest, and it is quite possible that it is mixed with ergot of the preceding year's harvest, it is evident that Grünfeld's statements being accepted would mean that ergot should be eliminated from the Pharmacopœia.

This state of affairs has existed for a number of years, and yet there are obstetricians who believe that satisfactory results follow the clinical use of ergot. Sharp⁽¹⁶⁾ obtained a "liquid extract" of ergot which he kept under ordinary conditions for twelve months, using it, as the occasion offered, on patients in labor or who had just completed labor and in whom there was a "loss of uterine tone." He concluded that this liquid extract was apparently as active at the expiration as it was at the beginning of the year.

Wood and Hofer⁽²⁰⁾ and Crawford⁽²⁾ apparently attach little value to the results of clinical observation in studying the question of the deterioration of ergot. It is certainly true that it is the tendency of some clinicians to draw conclusions from their experience in very limited numbers of cases, in which they have failed to consider adventitious circumstances. Such may have been true with Sharp, for he does not, unfortunately, give full enough details in regard to his study.

Bischofberger,⁽¹⁾ however, seems to have carried out his experiments with such care and thoroughness as to leave small room for questioning the results that he reports. In 1896, he tested lots of ergot, fresh, one year old, and two years old respectively, by administering the drug in powdered form to thirty patients. These patients had all been confined a short time previously and their abdominal walls were lax enough to permit of easy palpation of the uterus. In a number of instances, different lots of drug were tried upon the same patient, so that a comparison of activity could be made. He concludes: "If we take the mean of all experiments * * * it results that the activity of ergot of 1895 and 1896 is almost identical while that of 1894 * * * shows a plain, if only moderate decrease in activity." In comparing, more specifically, the results of experiments dealing only with fresh (1896) ergot and that one year old, he was able to see in the year-old specimen slightly less activity than in the fresh specimen.

As was said, Bischofberger's results seem entitled to acceptance, but, like Grünfeld he makes the mistake of assuming the same initial activity for his three

lots of ergot. It is quite possible that his older ergot may have been considerably stronger when fresh than was the ergot of 1896, so his inferences as to the rate of deterioration are not justified. One point, however, seems established: namely, that ergot two years old has a decided influence upon the uterus of a woman when the drug is administered per os.

To study properly the question of the deterioration of ergot, it is necessary to secure a lot of the drug and determine its strength in reference to a definite standard, and then test it at stated intervals thereafter. Edmunds and Hale⁽⁷⁾ seem to have shown that the cock's comb method, carried out with proper precautions, is a satisfactory test method, and they suggest ergotoxine, a definite chemical compound, as a standard. An investigation of this nature is now being carried out in our laboratory, but it seemed to us that information of value could be obtained by examining fresh and old preparations of ergot with a view to determining their relative activity. Unfortunately, in our earlier work of the routine testing of ergot, we simply determined that the preparations tested were sufficiently active to cause bluing of the comb when injected intramuscularly in the dose of 1 cc. per kilo fowl, so the possibility remains that the older preparations were originally more active than the recent ones. We can not believe that this will be the case throughout the large number of samples tested, but would rather think that the more recent samples possess greater activity than those made several years ago, owing to the greater care in manufacture.

The samples were, at about the time when the preparation was made, placed in small one-ounce, amber bottles. Ordinary cork stoppers were used, the samples were stored on shelves in a well-lighted room and subjected to wide variations in temperature; in fact, they were kept under conditions similar to those in many retail pharmacies, except that for practically all of the samples the stoppers had not been removed during the time they remained in storage. In the few instances where the stoppers had been removed it was for the withdrawal of a small portion of the liquid for examination and occurred only once or twice in any instance.

Blood pressure experiments were carried out on dogs, using, in most cases, morphine anæsthesia, supplanted by ether for operation—the method proposed by Wood and Hofer.⁽²⁰⁾ The morphine was given subcutaneously one-half to one hour before the operation was begun. At the end of this period the animal was etherized, the common carotid artery was attached to a mercury manometer, and last the trachea was connected with the artificial respiration apparatus. After allowing the animal about ten minutes to recover from the ether, and when a constant blood pressure record had been secured, the injection was made. Artificial respiration was used in all experiments except one.

The systolic pressure (as recorded by the ordinary mercury manometer) was measured. Measurements were made in millimeters, and fractions of millimeters were dropped.

Table A gives the actual elevations of blood pressure at the beginning of the experiments, and for the several periods following. Table B gives the changes in pressure after the injection of the drug from that at the beginning of the experiments.

(+ = above, — = below.)

TABLE A.
Blood Pressure Records on Dogs.

Date of test.	No. of preparation.	Date when made.	Sex of dog.	Wt. of dog in Kgs.	Anaesthetic and amount given per Kgm. of body weight. Stated in fraction of gram.	No. of injection.	Dose per Kgm. stated in fractions of a c.c.	Blood pressure when inj. was made.	Initial pressure ($\frac{1}{2}$ -3 min. after inj.)	Pressure 5 min. after injection.	10 min. after.	15 min. after.	20 min. after.
5-29-11	421352	5-29-11	M	6.6	Morph. S. 0.008	1	0.10	136	170	169	172	164	161
3-29-11	415330	3-26-11	M	17.0	Morph. S. 0.006	1	0.15	160	178	168	158	150	
2- 8-11	411173	2- 8-11	M	9.0	Morph. S. 0.005	1	0.08	132	159	157	151	141	151
2- 7-11	409578	2- 7-11	M	7.2	Morph. S. 0.009	1	0.16	150	164	173	172	174	180
12-21-10	406559	12-21-10	M	18.0	Morph. S. 0.009	1	0.08	145	166	171	160		
12-18-10	406556	12-15-10	M	8.8	Morph. S. 0.010	1	0.15	160	173	170	167		
11-18-10	401649	11-18-10	F	10.0	Morph. S. 0.0064	1	0.08	140	173	170	167		
10-28-10	401646	10-28-10	M	13.6	Morph. S. 0.00017	1	0.15	166	204	164			
6-28-10	386647	6-28-10		12.0	Morph. S. 0.00017	1	0.14	163	234	226	215	200	190
5-29-11	320659	9- 8-08	M	7.6	Morph. S. 0.008	1	0.10	128	176	191	189	172	160
5-14-11	316825	8-24-08	M	6.3	Acetoform. 0.025	1	0.08	124	173	179	188	200	200
4- 3-11	310299	6- 7-08	M	18.6	Morph. S. 0.006	1	0.15	140	151	120	129	141	140
2-27-11	306389	5- 3-08	F	9.0	Morph. S. 0.007	1	0.08	134	153	155	150	147	149
2-27-11	306389	5- 3-08	M	11.8	Morph. S. 0.008	1	0.15	137	167	165	146	139	138
3-23-11	277009	4-29-07	F	5.7	Morph. S. 0.008	1	0.08	95	135	115	122	132	137
3-23-11	277008	4-29-07	F	12.2	Morph. S. 0.008	2	0.15	137	160	137	146	122	120
3-22-11	277007	4-23-07	M	15.4	Morph. S. 0.007	1	0.08	126	Clot	163	168	167	160
6-24-11	272572	3-12-07	M	15.8	Morph. S. 0.0037	1	0.10	118	201	138	207	216	148
6-23-11	272572	3-12-07	F	18.4	Curare 0.0026	2	0.15	101	149	128	111	106	102
					Morph. S. 0.006	1	0.10	148	164	159	151	141	132
					Atrop. S. 0.0001	2	0.15	170	240	232	268	193	187
					Curare 0.0015				242	222	199	188	184
5- 5-11	261770	2-26-07	M	22.0	Morph. S. 0.159	1	0.10	90	127	110	112	110	110
6-23-11	261766	12-22-06	M	20.0	Morph. S. 0.006	2	0.15	107	116	116	111	110	111
6- 2-11	261766	12-22-06	F	7.1	Curare 0.0015	1	0.10	142	160	167	165	157	153
4- 4-11	255660	8-28-06	M	9.0	Morph. S. 0.0021*	2	0.15	154	182	192	187	177	
4-12-11	254053	8-16-06	M	19.5	Morph. S. 0.010	1	0.10	146	178	178	171	166	167
4- 5-11	251604	8- 3-06	M	8.6	Morph. S. 0.006	1	0.15	169	188	193	181	177	176
4- 5-11	251603	8- 3-06	F	4.3	Morph. S. 0.0035	1	0.08	146	166	152	154	146	140
4- 5-11	251603	8-28-06	M	7.2	Morph. S. 0.006	2	0.15	140	176	150	137		
					Morph. S. 0.010	1	0.10	122	181	170	140	136	130
					Morph. S. 0.006	1	0.10	92	118	119	119	118	122
						1	0.15	124	135	135	141	140	140
						1	0.10	112	132	106	113	114	109
						1	0.10	150	177	149	160	169	169

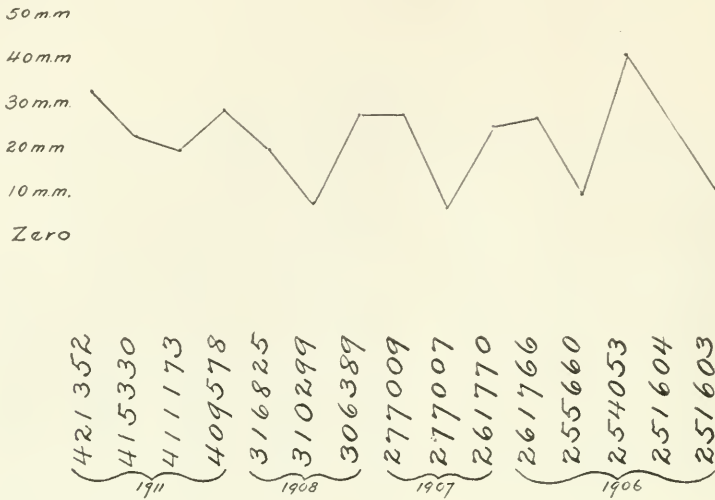
* Natural respiration.

TABLE B.

No. of preparation.	Age. (Fractions of months were dropped.)	Anaesthetic.	No. of injection.	Initial change.	Change at end of 5 min.	10 min.	15 min.	20 min.	Average change of initial, 5 and 10 min. periods.
421352	Fresh	Morph. S.	1	+34	+33	+36	+28	+25	+34
415330	Fresh	Morph. S.	2	+34	+33	+32	+14		+34
411173	Fresh	Morph. S.	2	+34	+25	+19	+9	+19	+34
409578	Fresh	Morph. S.	2	+34	+41	+40	+42	+48	+33
406559	Fresh	Morph. S.	2	+31	+26	+15			+31
		Atrop.	2	+33	+30	+27			+30
406556	Fresh	Morph. S.	2	+71	+63	+52	+37	+27	+62
		Atrop.	2						
401649	Fresh	Morph. S.	2	+104	+100	+73	+73	+52	+92
		Atrop.	2						
401646	Fresh	Morph. S.	2	+50	+50	+56	+36	+24	+52
		Atrop.	2						
386647	Fresh	Morph. S.	2	+100	+84	+93	+40	+19	+92
		Atrop.	2						
320659	32 mo.	Morph. S.	2	+62	+48	+82	+82	+78	+64
		Acetoform (No ether)	2						
316825	32 mo.	Morph. S.	2	+48	+63	+61	+44	+32	+57
310299	33 mo.	Morph. S.	2	+14	+20	+29	+41	+41	+21
		Acetoform	2						
306389	34 mo.	Morph. S.	1	+27	—4	+5	+17	+16	+9
		Acetoform	1	+29	+31	+26	+23	+25	+29
306389	34 mo.	Morph. S.	2	+33	+31	+12	+15	+4	+29
		Acetoform	2	+43	+27	+24	+12	+8	+31
277008	46 mo.	Morph. S.	2	+33	+81	Clot	Clot	+20	
277007	47 mo.	Morph. S.	2	+40	+20	+27	+37	+42	+29
272572	51 mo.	Morph. S.	2	+65	+42	+51	+27	+25	+53
		Atrop.	2						
272572	51 mo.	Morph. S.	2	+37	+37	+42	+41	+34	+8
		Atrop.	2	+27	+36	+33	+42	+26	+11
251604	56 mo.	Morph. S.	2	+31	+10	—7	—12	—16	+40
		Curare	2	+46	+41	+33	+23	+14	+99
251603	56 mo.	Morph. S.	2	+92	+84	+120	+45	+39	+73
		Atrop.	2	+94	+74	+51	+40	+36	
		Curare	2						
261770	50 mo.	Morph. S.	1	+37	+20	+22	+20	+20	+26
		Atrop.	1	+26	+26	+21	+20	+21	+24
261766	54 mo.	Morph. S.	1	+18	+25	+23	+15	+11	+22
		Atrop.	1	+40	+50	+45	+35	+21	+45
261766	53 mo.	Morph. S.*	1	+32	+32	+25	+20	+21	+30
		Atrop.	1	+42	+47	+35	+31	+30	+41
255660	55 mo.	Morph. S.	1	+20	+6	+8	0	—6	+11
		Atrop.	1	+30	+4	—9			+8
254053	55 mo.	Morph. S.	1	+57	+18	+18	+14	+8	+42
251604	56 mo.	Morph. S.	1	+26	+27	+27	+26	+30	+27
		Atrop.	1	+43	+43	+49	+48	+48	+45
251604	56 mo.	Morph. S.	2	+20	—6	+1	+2	—3	+20
251603	55 mo.	Morph. S.	2	+27	—1	+10	+19	+19	+12

* Natural respiration.

The average rise for the first three periods, in those experiments where morphine alone was used (with ether for operation), may be seen in plotted curve No. 1. The dots connected by lines represent pressures obtained from first



Curve = Elevations in blood pressure of dogs, caused by the intravenous injection of fluidextracts of ergo⁺ — morphine-ether anaesthesia
Vertical figures = Serial numbers of the fluidextracts
Dates = When preparations were made.

CURVE No. 1.

injections. The separate dots represent pressures obtained from second injections (where second injections were made), and show the increase or decrease in pressure from that following the first injection. The vertical figures are the serial numbers of the fluidextracts. The dates at the bottom show when the preparations were made.

Five blood pressure experiments were carried out on spinal preparations, prepared according to the directions of Sherrington.⁽¹⁷⁾ Data and results may be seen in Table C.

TABLE C.
Blood Pressure Records on Spinal Preparations.

Date of test.	No. of preparation.	When made.	Animal.	Wt. in Kgms.	No. of injection.	Dose of drug per Kgms. in fractions of a c.c.	Blood pressure at beginning of inj.	Blood pressure 3-5 min. after injection.	5 min. after.	10 min. after.	15 min. after.	20 min. after.	Average rise of first three periods.
4- 5-11	251603	8-28-06	Cat	3.5	1	0.10	104	161	167	165	152	134	+60
3-25-11	277007	4-23-07	Cat	2.6	1	0.08	130	135	130	141	132		
					2	0.16	132	162	168				
3-18-11	306389	5- 3-08	Cat	2.9	1	0.15	120	159	138	122	113		+20
					2	0.15	104	152	129	100			
5-14-11	316825	8-24-08	Cat	2.6	1	0.10	100	118	110				
					2	0.10	96	139	125	88			+21
					3	0.10	87	114	86				
3-10-11	411176	2- 8-11	Dog	5.6	1	0.08	138	152	158	151	158		+16

The results secured by the blood-pressure experiments are surprising in view of the experience of Wood and Hofer. As may be seen from the table and from

the chart, no definite information could be obtained by this method, for while some of the old samples failed to have the desired pressor activity, others appeared to be very active in this respect. In most of the experiments we followed the procedure of Wood and Hofer and are at a loss to account for the difference in the results.

Cock's-comb tests were carried out on stock samples of fluidextract (previously described). White Leghorn fowls from 7-10 months old were used except in a few cases where otherwise mentioned. All doses were calculated per kgm. of body weight. The drug was injected into the breast muscles and the fowls were observed at intervals for one and a half hours.

Fowls having well developed combs, of a deep red color and thickly covered with papillæ, have seemed to be the most susceptible, and will, nearly all of them, show the characteristic bluing of the comb provided the drug has been given in sufficient quantity.

Occasionally, however, fowls are found which will not show a bluing of the comb even after receiving large doses of the drug. In such chickens a blanching of the comb usually results, although in others there may be almost no change in color. Fowls of this kind were excluded. Some of those used may have partaken of this tendency in a slight measure. Certainly, some seemed more resistant than others. In some, considerable blanching of the comb would precede the bluing, while in others the comb would gradually become darker until a distinct bluing was visible. Of the fowls used, we made no selection for any given tests, but simply injected them in the order they happened to be brought to the laboratory by the assistant.

Tables D, E, and F show the results secured. In table D the samples were tested in a dose of 0.75 c.c.; in table E all samples failing to cause any bluing when administered in a dose of 0.75 c.c. were given in a dose of 1 c.c.; in table F those failing to cause bluing in 1 c.c. were administered in 1.5 c.c. per kgm.

The different results are designated in these tables as follows:

Marked bluing = Where larger part of comb was very distinctly blue.

Very faint bluing = Where the tips of points and back tip were very faintly though distinctly blue.

Faint bluing = A stage between the two preceding.

Darkening = Where comb seemed darkened but showed no distinct bluing.

Blanching = Where blanching occurred without any darkening or bluing.

TABLE D.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns.
Dose per Kgms. of body weight=0.75 cc.

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-14-11	434060	11-14-11	203	1.676	Marked bluing +
10-20-11	434057	10-20-11	194*	1.849	Faint bluing +
10-10-11	429539	9-23-11	183	1.498	No coloring O
10-28-11	429539	9-23-11	191*	1.965	No coloring O
11- 7-11	429539	9-23-11	195*	1.735	Faint bluing +
11- 8-11	429539	9-23-11	186	1.511	Faint bluing +
11- 7-11	425456	9- 4-11	194*	1.909	Blanching O
11- 8-11	425456	9- 4-11	187	1.250	No coloring O

* Fowl at least one and a half years old.

+ Where bluing in any degree was obtained.

O No noticeable bluing.

TABLE D.—(Continued.)

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
10-10-11	425453	8- 8-11	172	1.224	Marked bluing +
10-10-11	421335	7-10-11	184	1.253	Marked bluing +
10-10-11	421352	6-11-11	181	1.231	Faint bluing +
10-11-11	415333	5-18-11	169	1.293	Marked bluing +
10-11-11	415330	4-27-11	171	1.207	Marked bluing +
10-11-11	411176	3-18-11	173	1.464	Marked bluing +
10-11-11	409575	2-10-11	168	1.105	Very faint bluing +
10-28-11	409575	2-10-11	192*	1.912	Very faint bluing +
11- 7-11	409575	2-10-11	197*	1.709	Darkening O
10-11-11	406559	1-19-11	182	1.412	Faint bluing +
10-13-11	401649	12-15-10	187	1.425	Faint bluing +
10-13-11	401646	11-22-10	186	1.420	Marked bluing +
10-13-11	397483	10-24-10	194	1.194	Marked bluing +
10-16-11	393872	9- 9-10	181	1.189	No coloring O
10-28-11	393872	9- 9-10	192*	1.712	Very faint bluing +
10-16-11	393869	8-19-10	172	1.318	Marked bluing +
10-16-11	386647	7-17-10	184	1.146	Marked bluing +
10-16-11	382975	6- 4-10	183	1.438	Faint bluing +
10-17-11	382972	5- 6-10	186	1.579	Marked bluing +
10-17-11	380930	4-18-10	182	1.378	Faint bluing +
10-17-10	375495	3- 5-10	173	1.451	Faint bluing +
10-17-10	375491	2-19-10	171	1.151	Very faint bluing +
10-18-11	375488	1-28-09	187	1.400	Very faint bluing +
10-18-11	369507	12-10-09	190	1.218	Very faint bluing +
10-18-11	361919	11-14-09	189	1.339	Very faint bluing +
10-18-11	359337	9-12-09	188	1.231	Very faint bluing +
10-21-11	353756-7-8	8-21-09	185	1.106	Darkening +
10-30-11	353756-7-8	8-21-09	189	1.385	No coloring +
11-11-11	353756-7-8	8-21-09	198	1.565	No coloring +
10-21-11	353728	7-10-09	189	1.327	Very faint bluing +
10-21-11	351522	6-14-09	172	1.304	Very faint bluing +
10-21-11	347870	5-13-09	188	1.265	Marked bluing +
10-21-11	340670	4-10-09	173	1.341	Darkening O
10-30-11	340670	4-10-09	188	1.264	Darkening O
10-21-11	340668	3-22-09	190	1.231	Very faint bluing +
10-21-11	337592	2-27-09	187	1.380	Darkening +
10-21-11	337588	1-30-09	186	1.475	Darkening +
10-26-11	330033	12-23-08	183	1.480	Darkening O
10-26-11	323359	11-23-08	173	1.408	Very faint bluing +
10-26-11	323356	10-19-08	186	1.423	Faint bluing +
10-26-11	320661	9-20-08	185	1.100	Darkening O
10-26-11	316822	8- 3-08	190	1.269	Darkening O
10-26-11	316821	7-19-08	188	1.292	Faint bluing +
10-26-11	310300	6- 7-08	187	1.311	Darkening O
10-26-11	310298	5-15-08	189	1.380	Faint bluing +
10-28-11	306387	4-17-08	196o	1.983	Darkening +
10-30-11	306387	4-17-08	186	1.372	No coloring O
10-28-11	303460	3-15-08	197o	1.764	No coloring O
10-30-11	303460	3-15-08	185	1.065	No coloring O
10-30-11	300827	2- 4-08	183	1.461	No coloring O
10-30-11	300824	1- 4-08	187	1.249	No coloring O
10-30-11	294875	12- 6-07	169	1.085	Very faint bluing +
10-30-11	294874	11-23-07	172	1.306	No coloring O
10-30-11	291699	10-11-07	173	1.319	No coloring O
10-30-11	289298	9-13-07	190	1.200	No coloring O
10-30-11	286684	8-17-07	192*	1.822	No coloring O
10-30-11	286682	7-14-07	191*	1.804	No coloring O
10-30-11	280986	6-23-07	193*	1.564	No coloring O
11- 4-11	277010	5-23-07	187	1.291	Darkening O
11- 4-11	277009	4-29-07	173	1.329	No coloring O
11- 4-11	272572	3-12-07	188	1.233	Darkening O
11- 4-11	261770	2-26-07	190	1.114	Darkening O
11- 4-11	261766	12-22-06	189	1.364	Darkening O
11- 4-11	255664	10- 8-06	172	1.295	No coloring O
11- 4-11	254053	8-16-06	183	1.479	No coloring O
11- 4-11	251604	8- 3-06	186	1.443	No coloring O

o Brown Leghorn at least one and one-half years old.

* Fowl at least one and one-half years old.

±=as above.

O=as above.

TABLE E.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns.
Dose per Kgm. of body weight=1 c.c.

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-11-11	425456	9- 4-11	182	1.394	Marked bluing +
11-11-11	409575	2-10-11	173	1.298	Marked bluing +
11-11-11	353756-7-8	8-21-09	198	1.565	No coloring O

TABLE E.—(Continued.)

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-11-11	353756-7-8	8-21-09	186	1.455	Very faint bluing +
11- 7-11	340670	4-10-09	192*	1.886	Very faint bluing +
11-11-11	340670	4-10-09	188	1.229	Marked bluing +
11-11-11	327592	2-27-09	187	1.218	Darkening +
11-11-11	327588	1-30-09	189	1.311	Marked bluing +
11-11-11	330033	12-23-08	185	1.089	Darkening +
11-11-11	320661	9-20-08	172	1.216	Very faint bluing +
11-11-11	316822	8- 3-08	190	1.117	Marked bluing +
11-11-11	310300	6- 7-08	181	1.298	Very faint bluing +
11-16-11	306387	4-17-08	182	1.423	Darkening +
11-16-11	303460	3-15-08	185	1.145	Darkening +
11-16-11	300827	2- 4-08	190	1.060	Faint bluing +
11-16-11	300824	1- 4-08	187	1.163	Darkening +
11-16-11	294874	11-23-07	188	1.173	Faint bluing +
11-16-11	291699	10-11-07	183	1.504	Blanching +
11-16-11	289208	9-13-07	181	1.276	Darkening +
11-16-11	286684	8-17-07	186	1.452	Faint bluing +
11-16-11	286682	7-14-07	189	1.262	Marked bluing +
11-16-11	280986	6-23-07	191*	1.567	Very faint bluing +
11-16-11	277010	5-23-07	173	1.218	Very faint bluing +
11-16-11	277009	4-29-07	172	1.293	Darkening +
11-16-11	272572	3-12-07	192*	1.687	Blanching +
11-18-11	261770	2-26-07	200	1.376	Blanching +
11-18-11	261766	12-26-06	199	1.793	Very faint bluing +
11-18-11	255664	10- 8-06	219	1.351	Darkening +
11-18-11	254053	8-16-06	220	1.390	Darkening +
11-18-11	251604	8- 3-06	198	1.715	Darkening +

* Fowl at least one and a half years old.

+=Bluing in any degree.

O=No noticeable bluing.

TABLE F.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns.
Dose per Kgm. of body weight=1.5 c.c.

Date.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-22-11	337592	2-27-09	188	1.210	Very faint bluing +
11-22-11	330033	12-23-08	187	1.206	Darkening +
11-22-11	306387	4-17-08	220	1.423	Very faint bluing +
11-22-11	303460	3-15-08	200	1.359	Very faint bluing +
11-22-11	300824	1- 4-08	202	1.522	Very faint bluing +
11-22-11	291699	10-11-07	173	1.260	No coloring +
11-22-11	289208	9-13-07	189	1.297	Darkening +
11-22-11	277009	4-29-07	186	1.532	Very faint bluing +
11-22-11	272572	3-12-07	182	1.430	No coloring +
11-22-11	261770	2-26-07	190	1.089	Darkening +
11-22-11	255664	10- 8-06	181	1.298	Very faint bluing +
11-22-11	254053	8-16-06	172	1.366	Very faint bluing +
11-22-11	251604	8- 3-06	183	1.568	No coloring +

+=Bluing in any degree.

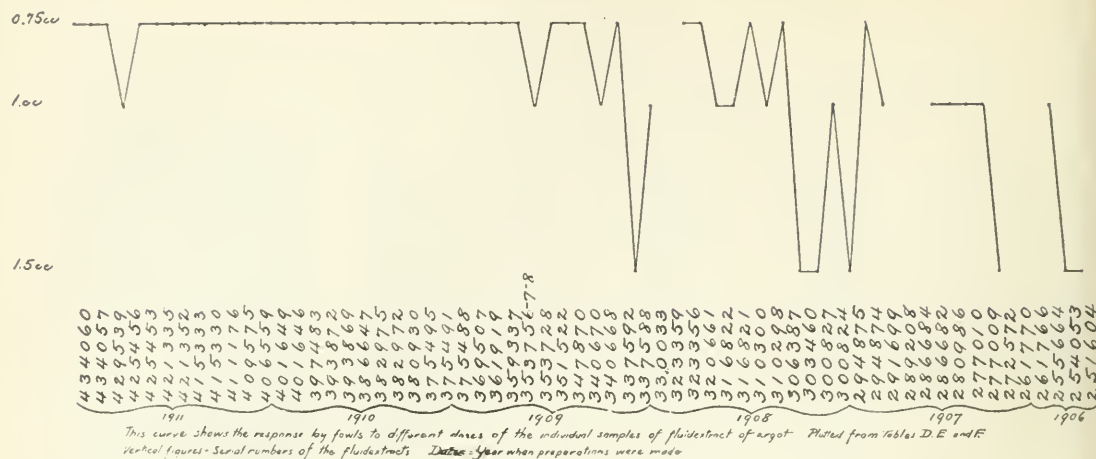
O=No noticeable bluing.

Curve 2 was plotted from the results given in Tables D, E, and F and shows the response of fowls to the different doses of the fluidextracts.

The gaps are due to the fact that preparations corresponding to those numbers did not cause bluing in a dose of 1.5 c.c. per kilo, that being the largest dose used in this series.

TESTS OF MIXED SAMPLES MADE FROM STOCK SAMPLES BY THE COCK'S COMB METHOD, USING WHITE LEGHORNS.

Sixty of the stock lot samples previously tested individually were divided into five groups of twelve each. A mixed sample was made from each group. Since the individual samples were taken, one for each month, extending back over



CURVE No. 2.

approximately sixty months, each mixed sample represented the lots made during a given year. The sample from the oldest group was labeled 1, the next 2, 3, 4, and 5 respectively. Data and results may be seen in table G, or plotted in curve 3.

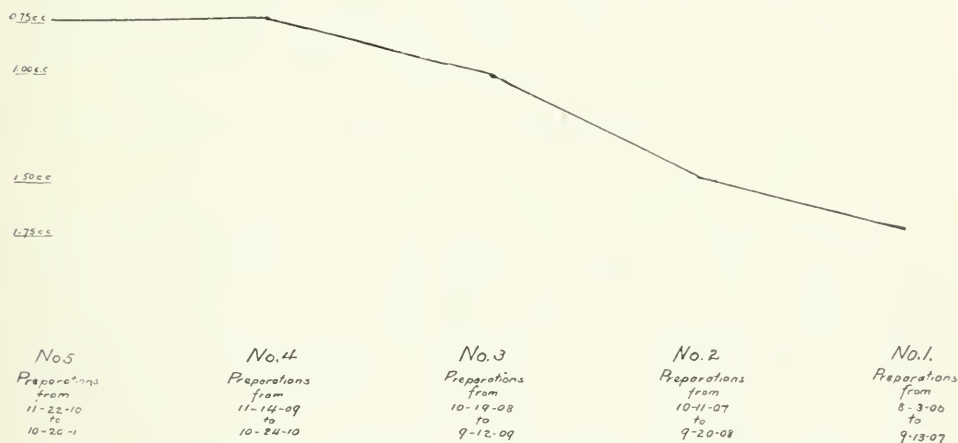
TABLE G.

Date of test.	Sample and age.	No. of fowl.	Wt. in Kgms.	Dose per Kgm.	Result.
11-14-11	1.	202	1.469	0.75 c.c.	No coloring
11-22-11	Preparations	198	1.704	0.75 c.c.	Blanching
11-18-11	from	233	1.865	1.00 c.c.	Darkening
12- 5-11	8- 3-06	199	1.953	1.25 c.c.	Very faint bluing
12- 5-11	to	224	1.368	1.25 c.c.	Darkening
12- 9-11	9-13-07	223	1.850	1.25 c.c.	Darkening
11-28-11	inclusive	226	1.586	1.5 c.c.	Faint bluing
12-12-11		202	1.558	1.5 c.c.	Darkening
12-12-11		225	1.793	1.5 c.c.	No coloring
12-21-11		201	1.450	1.5 c.c.	Very faint bluing
12-21-11		237	1.437	1.5 c.c.	No coloring
12-21-11		220	1.475	1.63 c.c.	Very faint bluing
12-21-11		187	1.392	1.63 c.c.	Very faint bluing
12-21-11		226	1.500	1.63 c.c.	Darkening
12-15-11		203	1.796	1.75 c.c.	Very faint bluing
12-21-11		204	1.371	1.75 c.c.	Faint bluing
11-14-11	2.	201	1.507	0.75 c.c.	Darkening
11-14-11	Preparations	226	1.726	0.75 c.c.	Darkening
11-18-11	from	222	1.396	1.00 c.c.	Darkening
12- 6-11	10-11-07	223	1.907	1.00 c.c.	Darkening
12- 6-11	to	198	1.725	1.00 c.c.	Blanching
12- 9-11	9-20-08	219	1.397	1.00 c.c.	No coloring
12-12-11	inclusive	204	1.478	1.25 c.c.	Very faint bluing
12-15-11		202	1.418	1.25 c.c.	Faint bluing
12-15-11		226	1.514	1.25 c.c.	Darkening
12-28-11		222	1.398	1.50 c.c.	Faint bluing
12-12-11		199	1.916	1.50 c.c.	Very faint bluing
12-12-11		237	1.541	1.50 c.c.	Very faint bluing
12- 6-11	3.	200	1.348	0.50 c.c.	Darkening
12- 6-11	Preparations	202	1.559	0.63 c.c.	Darkening
12- 9-11	from	226	1.558	0.63 c.c.	No coloring
11-14-11	10-19-08	200	1.418	0.75 c.c.	Very faint bluing
11-22-11	to	202	1.721	0.75 c.c.	Faint bluing
12-12-11	9-12-09	200	1.493	0.75 c.c.	Darkening
12-12-11	inclusive	226	1.550	0.75 c.c.	No coloring
12-15-11		223	1.841	0.87 c.c.	No coloring
12-15-11		224	1.384	0.87 c.c.	No coloring
12-21-11		225	1.764	0.87 c.c.	Darkening
12-21-11		223	1.878	0.87 c.c.	Darkening
12-21-11		182	1.689	0.87 c.c.	Very faint bluing
11-18-11		201	1.477	1.00 c.c.	Faint bluing
12-21-11		219	1.327	1.00 c.c.	Very faint bluing
12-21-11		224	1.419	1.00 c.c.	Very faint bluing

TABLE G.—(Continued.)

Date of test.	Sample and age.	No. of fowl.	Wt. in Kgms.	Dose per Kgm.	Result.
12- 6-11	4.	226	1.576	0.5 c.c.	No coloring O
12- 6-11	Preparations	225	1.806	0.5 c.c.	No coloring O
12- 9-11	from	224	1.355	0.63 c.c.	Darkening O
12-15-11	11-14-09	225	1.739	0.63 c.c.	Very faint bluing +
12-15-11	to	187	1.333	0.63 c.c.	Darkening O
12-21-11	10-24-10	229	1.193	0.63 c.c.	Very faint bluing +
12-21-11		199	1.908	0.63 c.c.	No coloring O
12-21-11	inclusive	199	1.738	0.75 c.c.	Very faint bluing +
11-22-11		225	1.933	0.75 c.c.	Very faint bluing +
11-18-11		221	1.566	1.00 c.c.	Marked bluing +
12- 6-11	5.	203	1.775	0.5 c.c.	No coloring O
12- 6-11	Preparations	219	1.387	0.5 c.c.	No coloring O
12- 9-11	from	225	1.744	0.63 c.c.	Darkening O
12-15-11	11-22-10	201	1.429	0.63 c.c.	No coloring O
12-15-11	to	219	1.367	0.63 c.c.	No coloring O
12-21-11	10-20-11	186	1.669	0.63 c.c.	Very faint bluing +
12-21-11	inclusive	228	1.465	0.63 c.c.	Very faint bluing +
11-14-11		198	1.760	0.75 c.c.	Very faint bluing +
11-22-11		201	1.473	0.75 c.c.	Faint bluing +
11-18-11		203	1.647	1.00 c.c.	Marked bluing +

From an examination of Table D, it is seen that, with a few exceptions, the samples back to April 10, 1909 (that is, two years and six months), seem to cause bluing of the comb in a dose of 0.75 c.c. per kgm. From that time back, of the 31



This curve shows the amount of the different mixed samples of fluid extract of ergot required to produce bluing of the cock's comb. Curve plotted from Table G.

CURVE No. 3.

samples tested, only six had any visible effect upon the comb when given in this dose.

From Table E, it may be seen that, with quite a number of exceptions, there is no distinct evidence of diminished strength until April 29, 1907 (sample No. 277009), or about four years and six months.

Table F does not give information of any value, because the sample five years old gave as much bluing in the dose of 1.5 c.c. as did the one only two years old.

The results given in Table G are, we believe, the ones of most value. By mixing

together all of the samples of one year, variations of individual samples become less important and the resulting diminution in the number of preparations enables fairly accurate comparison of strength.

For mixture No. 1, we may put the effective dose at 1.75 c.c.; or, may say that a mixture of preparations about four and one-half years old causes bluing of the cock's comb when given in that dose. Mixture No. 2 approximately three and one-half years old, produced about the same effect when given in a dose of 1.5 c.c. Mixture No. 3, about two and one-half years old, produces bluing in a dose of 1.00 c.c.; while mixture No. 4, about one and one-half years old, and mixture No. 5, about six months old, were effective in a dose of 0.75 c.c. The last two mixtures showed an almost identical degree of activity, so far as we could determine, and it is exceptional to find a fresh preparation that will cause bluing in a smaller dose than this. Edmunds and Hale* find that 1 c.c. of a fresh fluid-extract of ergot per kgm. fowl should cause distinct bluing of the comb, and suggest that 5 mgms. of ergotoxine phosphate be considered equivalent to .2 c.c. of such a fluidextract. On our chickens, we have found that our effective dose of 0.75 c.c. is about equivalent to 1.87 mgms. of ergotoxine phosphate; or, in other words, samples of fluidextract of ergot two years old possess an activity approximately equal to this provisional standard.

The mixture two and one-half years old had to be given in a dose 33 1-3 per cent. larger; the three and a half year old mixture had to be given in a dose 100 per cent. larger; while the four and one-half year old mixture was effective only in a dose about 133 per cent. larger than the mixtures made up of comparatively fresh preparations.

As we have said, inferences as to the exact rate of deterioration can be drawn from these experiments only on the assumption of an initial activity the same for all preparations. This is, of course, not justified, but it does seem to us that the large number of preparations examined affords ground for making approximations as to the keeping quality of the fluidextract of ergot. It would seem to us that, if the cock's-comb method is considered reliable, preparations of the fluid-extract of ergot kept in well-stoppered, small vials under ordinary conditions will retain their activity practically unaltered for at least two or two and one-half years, but from this time on there is an appreciable deterioration which, at the end of four or five years, would necessitate the administration of more than double the dose in order to secure the same effect as from a fresh preparation. It is probable that deterioration is taking place from the time of manufacture, but in the samples examined by us, this did not become evident under two and a half years.

It has been frequently suggested that commercial preparations of ergot should bear the date when tested, but it seems to us that such procedure would be of value only when information is possessed concerning the probable rate of deteri-

* These authors do not state distinctly that the dose was per kgm., but from the context we assume this.

oration. The experiments which we report are suggestive, but we hope that others will take up the investigation so that a definite conclusion can be reached.

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THE BACON BILL.*

GEO. F. PAYNE.

"To promote the efficiency of the Medical Department of the United States Army.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Hospital Corps of the United States Army shall hereafter be known and designated as the Medical Corps, shall constitute the enlisted personnel of the Medical Corps now authorized by law, and shall consist of sergeants major, at seventy-five dollars per month; sergeants, first class, at sixty-five dollars per month; sergeants, at thirty-six dollars per month; corporals, at twenty-four dollars per month; cooks, at thirty dollars per month; privates, first class, at twenty-one dollars per month; and privates, at sixteen dollars per month, with such increase for length of service and other allowances as are or may hereafter be established by law."

The purpose of this Bill is to remedy as far as possible the present and long standing condition which makes it actually impossible to secure for the Medical Department the class of men necessary for the efficient performance of duties connected with the care of the sick and the sanitary service in general. Inasmuch as all branches of the Army are practically in competition with each other for men possessing the necessary qualifications, it is obvious that efficiency can only be maintained by offering equal opportunities for advancement in all branches, or, as in this case, by a compensatory increase in the rate of pay in those branches

*Indexed as S. 5725, and as H. R. 22263, 62d Congress, 2d Session.

in which the non-commissioned grades are relatively few in number as compared with other corps.

Prior to the Act of May 11, 1908, the privates first class of the Hospital Corps received \$5.00 per month more than privates of the line of the Army. It appears to have been recognized by Congress that the work of the Hospital Corps was not only arduous and confining, but that, involving as it does the care of the sick and wounded, the compounding of drugs, etc., it was extremely technical and responsible, and that to secure the class of men who met the requirements indicated, it was necessary to offer some better inducement than the pay of a private soldier. The Act of May 11, 1908, gave no increase in pay to the privates first class, Hospital Corps, while the pay of other soldiers was increased from 20 to 80 per cent. with the sole exception of the Hospital Corps. The Hospital Corps constitutes a part of what are known as the "Staff Departments of the Army." In all of these Departments the privates first class, it is true, receive also \$18.00 per month. In all of them, however, about 12 per cent. of the total strength have the grade of corporal at \$24.00 per month on first enlistment, while in the Hospital Corps the proportion of corporals to the total strength is but 1.42 per cent. Plainly therefore the opportunity for advancement for the privates of this Corps are about ten times less than in other staff departments. In actual figures the difference against the Hospital Corps amounts to the loss of 400 corporals; there being in this Corps but 50 corporals (or 1.42% of its total), while on the basis which prevails in other staffs—the Signal Corps for example (12.88%)—there would be 450. It requires no elaborate argument to show that the loss of promotion which would be possible with 450 corporals has a most serious effect on the class of men who enlist for the lower grades—those of private and private first class. To a great extent the Hospital Corps is now compelled to accept men who realize their inability to make good in other branches where the prospects of advancement being so much better, there is a far wider field from which to make a selection. It follows therefore that unless legislation be enacted which will give to the Hospital Corps the same proportionate number of corporals as in other corps, that there must be some compensatory increase in the pay of the privates first class. The increase requested is \$3.00 per month, which will make the pay of this grade \$21.00 instead of \$18.00. It is observed, in passing, that the farrier, who, under the direction of the veterinary surgeon, cares for sick mules and horses, now receives \$21.00, a higher rate than that now paid the Hospital Corps privates, first class, who, under the direction of the medical officer, cares for the sick soldier or officer. In addition to this, there are numerous ratings and qualifications by which the soldier in other branches may add from \$2.00 to \$9.00 per month to his pay, which are not obtainable and are not allowed to the Hospital Corps.

The sergeants of the Hospital Corps now actually receive less pay than any other non-commissioned officers of the same grade in any branch of the service. Their flat pay is \$30.00 per month, without the opportunity to qualify in marksmanship, gunnery, or so-called special ratings, as in other branches; these qualifications add from \$2.00 to \$9.00 per month to the flat pay of sergeants in all other branches. In the Signal and Coast Artillery Corps, the sergeant and second class electrician sergeant respectively, who may fairly be compared with the sergeants of the Hospital Corps, receive \$36.00 flat pay.

To obtain the position of sergeant in the Hospital Corps the soldier is required to qualify in a written examination in pharmacy, materia medica, care of sick, elementary hygiene, arithmetic, minor surgery and hygiene and is, in addition, examined orally in army regulations, nursing, practical pharmacy, clerical work, drill, minor surgery, including extraction of teeth. In other branches, an examination of relatively equal scope and difficulty is required only of sergeants and second class electrician sergeants of the Signal and Coast Artillery Corps, and their pay is \$36.00 as compared with \$30.00 of the Hospital Corps sergeants.

The duties of the Hospital Corps sergeants are arduous, confining and responsible. In the compounding of prescriptions, alone, he assumes a responsibility which merits adequate remuneration. In the pay increase of 1908 sergeants of infantry, cavalry and artillery received an increase of 65%, the sergeants of the Hospital Corps received an increase of 20%. It is proposed in accompanying Bill to pay the sergeants of the H. C. \$36.00, as in the case of Signal Corps sergeants and second class electrician sergeants. Considering the long hours of duty and nature of the work devolving upon them, it is believed that the proposed equalization is not only necessary, in the interests of the sick, but also just to the Corps.

The grade of sergeants major at \$75.00—corresponding to that of master signal electrician and master electrician—is created by this Bill, with the object of placing the Hospital Corps on a basis of equality with other branches and offering to the non-commissioned officers of this branch opportunities equal to those obtainable in others. This course is necessary if the Medical Department is to secure its quota of the best and most desirable soldiers. At the larger hospitals it is necessary, as there will be found five or six sergeants first class all receiving the same rate of pay, although the senior carries the responsibility for his juniors. The work of such a man requires highly technical training and considerable ability; such men will not at present enlist in the Hospital Corps because they realize the better opportunities open to them in other branches. The grade of pharmacist exists in the Navy and in the Marine Hospital Service at a far higher rate than that proposed for the Army. It may here be noted that the Army Signal Corps, in which the average rates of pay for co-existing grades are equal to those of the Hospital Corps, has 3.4% of the master signal electrician grade at \$75.00 per month. With a like proportion, the Hospital Corps should have 120 of such a grade; it is, however, proposed that there shall be but 30 sergeants major at \$75.00 per month.

An increase of \$15.00 per month (from \$50.00 to \$65.00) is proposed for the sergeants first class. The proposed rate equals that of the engineer in the coast artillery. What has been said about the qualifications, duties and responsibilities of the sergeants of the Hospital Corps applies with greater force to the sergeants first class. The latter are selected by competitive and searching examinations from the best qualified sergeants; they perform the duties of pharmacists, clerks, storekeepers, disciplinarians, anesthetists and are practically continually on duty and at work. The sick soldier is sick quite as much at night as during the day and it is the function of the sergeants first class and sergeants to nurse and supervise the nursing of the sick. The sergeants first class are practically the house surgeons, pharmacists and chief nurse combined, of our military hospitals.

Alone of all non-commissioned officers of the Army, the sergeants first class are

subject to re-examination professionally every three years. This fact alone compels these men to devote to study the majority of the few hours of spare time which others can devote to amusement. Under present conditions, the sergeants first class are all on the same level of pay; there is no reward for exceptional qualifications of merit. In this respect the Hospital Corps differs from any other branch of the Army and with a most unfavorable result.

The duties of the Hospital Corps in the field are even more arduous than in garrison. The work of driving an ambulance filled with sick is, for example, quite as important as driving a wagon loaded with forage. Yet the wagon driver receives \$40.00, if a civilian, and \$21.00 if a soldier; while the Hospital Corps private receives but \$16.00 or \$18.00.

In the Navy the first class Hospital apprentice corresponding to first class private Hospital Corps, receives \$33.00 as compared with \$18.00 in the Army. The rates of pay provided for in attached bill are those recommended by the Surgeon General of the Army in his last annual report to the Secretary of War and represent what must be considered as expert and authoritative opinion as to the degree of improvement necessary to better present conditions.

The privates of today are the non-commissioned officers of the future; it is a military axiom that good non-commissioned officers—men trained in their specific duties—are absolutely necessary for military efficiency. It follows that if the Hospital Corps cannot obtain good material for privates the quality of its non-commissioned officers will decline. The private soldier seeks and obtains his reward to non-commissioned rank—that of corporal, sergeant, etc., and without some improvement in the pay of those and other grades, it is evident that men competent to become non-commissioned officers will not enter the Hospital Corps.

The soldier, whether officer or enlisted man, has practically no voice in the selection of his nurse or pharmacist; the national government provides both and whether skilfull or otherwise, the soldier must perforce be content. The function of the nurse and of the pharmacist are too responsible to be entrusted to men of a low order of intelligence or who lack appreciation of the responsibilities of their duties. It is a matter of official record in the War Department, as reported by numerous medical officers, whose interests are purely professional and humanitarian, that the morals and quality of the Hospital Corps is a progressively declining factor. The outcome is obvious and requires no comment.

Following the custom in all branches of the Army, it is proposed to change the designation Hospital Corps to Medical Corps. The Hospital Corps is the only branch in which the soldier belongs to one corps and the officer who immediately commands him to another. The present arrangement has nothing to commend it and much to criticise. It is unwieldy, administratively cumbersome and inhibits the development of that esprit de corps which is maintained in other branches.

The National Guard under certain conditions becomes an actual portion of the United States Army, and the above arguments apply with equal force to its members, hence the pharmacists of the whole country are deeply interested. This matter is a serious one for even during actual hostilities more men die in the United States Army from Sickness than from the missiles of the enemy, which shows how very important is the promotion of the efficiency of the Hospital Corps.

A PLAN FOR COLLECTING EVIDENCE CONCERNING THE NEWER MATERIA MEDICA.

A paper under the above title by F. E. Stewart, Ph. G., M. D., Chairman of the Committee on Patents and Trademarks of the A. Ph. A., and of the Pa. Pharm. Assoc., was published in *The Medical Herald* for January, 1912. The author asserts that during the past thirty years, tens of thousands of alleged new remedies have been introduced by advertising and not more than one-tenth of one per cent. of them have proved of any therapeutic value. The author goes on to say:

"This introduction represents hundreds of thousands of useless experiments upon the sick by physicians in private and hospital practice, and many times that number by the self-medicating public. No one has profited by this so-called 'new remedy' business, except the manufacturers and the press—medical, pharmaceutical, secular and religious. The public, disgusted by this state of affairs, has lost faith in doctors and drugs and is turning to drugless systems of therapy for relief.

"The medical and pharmaceutical professions have been impoverished by it and their prestige seriously injured in public esteem. The public has suffered by it in health and finance. There is no use of trying to put the blame on anybody for all parties to the transaction are at fault. The medical profession is at fault because this condition of affairs could never have occurred if the profession as custodians of the materia medica had been true to its obligations toward the public. The pharmaceutical profession is at fault because instead of making a vigorous protest against the invasion of the pharmaceutic field by persons who desired to exploit it dishonestly for financial gain the profession virtually went into the same business. The public is at fault because it did not pass and enforce proper laws to make such exploitation of the sick impossible.

"The remedy is not to be found in throwing the materia medica overboard and resorting to drugless cults. It is to be found in standardizing the materia medica and rendering drugs instruments of precision.

"How shall this be accomplished? The answer is, by a co-operative investigation in which the medical and pharmaceutical press take part."

The author defines his meaning of drug standardization in the following terms:

"Drug standardization consists of fixing a nomenclature for drugs and preparations; it consists of determining methods for insuring uniformity in composition and physiological action and therapeutic effect; it consists in adjusting finished products to fixed standards and in devising means for keeping them there for a sufficient length of time to permit their proper application as therapeutic agents; it consists in reducing this knowledge to law and embodying it in system and then teaching it in medical and pharmaceutical colleges, universities and journals.

"But this knowledge cannot be taught until it is acquired. How then, is it to be acquired?

"The knowledge of medicine is to be acquired by the practice of the medical arts and by the publication of the results of experience by those engaged in that practice.

"Progress in the knowledge of materia medica is dependent upon the practice of those engaged in the practice of pharmacognosy, pharmacy, pharmacodynamics, therapydynamics and pharmacotherapy."

The history of the "Working Bulletin System" was then given. The system was devised by the author in 1881 as part of a plan for an investigation of the

materia medica of the world under the auspices of the Smithsonian Institute—a government institution at Washington for the free diffusion of knowledge.

Included in the plan was “the founding of ‘Scientific Departments’ by the great manufacturing houses, the same to be manned by pharmacognocists, pharmacists, biologists, and chemists, thus bringing the manufacturers into coöperation with the professions of medicine and pharmacy, and bringing both professions into close and harmonious relations.”

Dr. Stewart relates how this plan of drug standardization was opposed by the so-called “patent” or “proprietary” medicine business, against which he has been waging continuous warfare ever since in consequence. In referring to this business and its protection under patent and trademark laws he says:

“Conditions existing in the materia medica supply business in relation to patents and trademarks would not be tolerated in any other business for a moment. Suppose Bessemer had attempted to monopolize the name ‘Bessemer steel’ as a trademark after the patent for his process had expired. How long would the steel manufacturers have tolerated such a monopoly? Yet, some of the great chemical and pharmacial houses are advocating just such a monopoly. Suppose the inventors of pens, paint, paper, needles and pins, linen, woolen and cotton goods, and all other inventions, had claimed that they owned the exclusive right to make these products, that such rights belonged to them naturally, that they were protected in these rights by the common law, that others entering the field were invading their natural rights, that all products of the same kind were fraudulent substitutions, that they, the inventors not only owned the inventions themselves, but also owned the names of the inventions. Would not their claims have been considered absurd? And yet these are the arguments used by the so-called proprietary medicine interests in supporting their claims to monopoly. Under such a system of monopoly applied to all inventions, progress in civilization would have been impossible. The whole world would have been owned by an aristocracy of inventors and the people in the world would have been their slaves, or, the latter being in the majority, would have arisen in their might and put an end to the monopolists as well as to the monopolies. The object of the patent law is to promote progress in science and the useful arts, that of the trade-mark law to protect honest manufacturers and the public from the fraudulent substitution of one brand of goods for another. The patent law grants a seventeen-year monopoly to inventors of new and useful inventions. The trade-mark law is not intended to create or foster monopoly, but to promote legitimate competition. The two laws really have nothing in common, but the so-called proprietary people are attempting under the guise of trade-mark legislation to create a new patent system by which inventors of nothing but names may obtain commercial control over their products far more restrictive than obtainable by the patent law.”

The author believes that the proper interpretation and application of the patent law to materia medica inventions and the use of trademarks to distinguish brands of open formula materia medica products, would aid, rather than hinder the scientific classification and standardization of the newer materia medica. He believes that wide and unprejudiced discussion of every alleged new invention is necessary for its proper classification, and that such discussion should be carried on in medical and pharmaceutical societies and in the reading columns of the medical and pharmaceutical press. He points out the difficulties of securing such discussion in journals which accept advertisements concerning the products referred to. In his opinion the organization of a strong central board of control,

in which the medical and pharmaceutical professions and manufacturing houses and press are represented would solve the problems affecting the new *materia medica*. He proposes that the "personnel of this board be the same as the present committee for the revision of the U. S. Pharmacopœia. The duties of this board to be:

"1. The censorship of the advertisements of the medical and pharmaceutical journals.

"2. To censor all literature from manufacturing houses, including labels.

"3. To determine what *materia medica* products shall be placed on the market.

"4. To determine the therapeutic value of products by collective investigation as represented by the working bulletin system.

"5. To co-operate with the Patent Office in the interpretation, application and enforcement of the patent and trademark laws relating to *materia medica*.

"The revision committee now decides what products shall go into the Pharmacopœia, and will have to decide sooner or later which of the new products shall be admitted. Why wait ten years until the meeting of the next Pharmacopœial Convention before investigating these new products? Why not co-operate with their introducers in determining the therapeutic value of new products at the time of their introduction? The recommendations of such a board would be exceedingly influential, as capital, always conservative, would hesitate to invest in a proscribed product. The Committee on Scope of the Pharmacopœia would thus be saved much needless labor, and humanity much needless experimentation. The refusal of a manufacturer to co-operate with the committee would be taken by the medical and pharmaceutical profession as *prima facie* evidence that the products will not bear the light of disinterested investigation."

Dr. Stewart's object in publishing his paper at this time is to bring the subject of *materia monopoly* and the introduction of alleged new products by advertising before the medical and pharmaceutical professions and the great manufacturing houses engaged in the *materia medica* supply business, hoping to excite general discussion, that the results of the same may be embodied in the report of the Committee on Patents and Trademarks for presentation at the next annual meeting of the American Pharmaceutical Association.

"THE EDUCATED FOOL."

"A man who has a very little sense may by mechanical process acquire a vast deal of information, and yet after all he is nothing more or less than what you have seen and what I have seen, the educated fool. There are men who are perfectly at home with the poets, versed with all the lore of the classics, men who can call the myriad stars by name and trace them in their unmarked paths through the Heavens, and yet, after it all, are fools, and after all, the accomplishments of a fool are as utterly wasted and worthless as a sweet toned instrument in the hands of a man who has no music in his soul. So that as I have said, as it was in the beginning, is now and ever will be, that which was born a fool must live and die one."—*Charles F. Moore*, Editor of "Paper."

Papers Presented to Local Branches

THE SELENIUM TREATMENT OF CARCINOMA.*

DR. FELIX VON OEFELE.

It is not a direct question for the pharmacists, if selenium will cure cancer or not; but it is important for the pharmacist to know if one or more derivatives are efficient in the cure of cancer. It is also important to know how to handle these preparations for the making ready of medicines. In this particular it is necessary for the pharmacist to know more than the treating physician.

The main point of salvarsan is, that the poisoning effect of arsenic persists for the spirochaete, but in a persistent manner loses the poisoning effect on the human body. This preparation must be handled very carefully, and therefore it is put up in a special form ready for the physician's use. All the dividing into single doses is done in the manufacturing laboratory and there is no work for the druggist except to be the retail salesman. Mostly the selling of salvarsan is a direct business between the manufacturer, the wholesaler and the treating physician, and very often without the assistance of a druggist. The profit goes to the manufacturer and the unpaid dispensing trouble to the physician. This would not be necessary, if at the first, arsenic work on syphilis had been known to druggists.

For the cure of cancer the treatment of mice starts in the same way as the first salvarsan experiments. But the selenium application in the United States has gone further because it went the old way of pharmaceutical preparation without intravenous work.

The first thing to be known is the modus of the working of selenium. In the body you have albumins, fats and carbohydrates. These matters are burned up and the oxidized products given out. These mentioned foods consist of carbon, hydrogen, nitrogen, sulphur, phosphorus and other elements. Only carbon, hydrogen and sulphur are oxidized in the body. The other elements are only split off or formed into new compounds but are never changed in their degree of oxidation. It would take too much time to tell all the evidence which I found in cancer cases showing that the oxidation of carbon and hydrogen is increased and of sulphur decreased. A special treatment of cancer must be to improve the sulphur oxidation and to retard the oxidation of carbon and hydrogen. Especially selenium can do this.

Previously there were many other chemicals proposed for cancer cures. These were either oxidizing materials or aniline derivatives. The proofs for experimental efficiency were all right, but practically it was never possible to bring this efficient material to every carcinoma cell, and only in this way can cancer be cured.

*Read before the New York Branch, March 11, 1912.

Selenium as a cancer cure must be able to come to every pathological cell. There the selenium will take oxygen and give it over to a higher oxidation of sulphur and will again take oxygen. The selenium and its compounds have such a high affinity for special albumins and keratines, that they elect the carcinoma cells, if there is any possibility to get to them.

Elementary selenium in coarse powder is never absorbed, either by the mouth, nor by the skin, nor by subcutaneous or intravenous injection. Very fine freshly precipitated selenium can be absorbed when given through the mouth or applied as ointment to the skin, but only to a slight extent, and this amount depends on the fineness of the powder, and the freshly precipitated material is more actively absorbed than the old. In a material as poisonous as selenium it is important to have an exact idea of the amount absorbed. Therefore precipitated selenium has no practical use.

The compounds of selenium in the form of selenium-hydrogen, or in the oxidized forms as selenous and selenic acids, are reduced by contact with living albumin to metallic red selenium. At first we used selenium dioxide through the mouth. If this selenium dioxide is diluted enough, or mixed with enough other substances, in the digestive tract, a very fine suspension of reduced red selenium is formed, which becomes absorbed in the smaller intestine. A small part goes into organic compounds, as methyl-selenide and another part swings between oxidized and reduced salts, i. e., between selenites and selenides. About the same thing happens, if we give selenites, selenides or selenates of an organic character.

The toxicity of selenites, selenides and selenates is about always the same and depends only upon the solubility. Insoluble salts as copper selenide cannot be absorbed and are therefore not poisonous and not efficient. The efficiency and poisoning amount of the soluble salts are about as close together as in arsenic. The poisoning amount of soluble selenium salts is for an adult man between 4 and 15 grains. The efficient amount is between $1/20$ and $1/5$ of a grain per day.

These properties make it more desirable to have soluble organic compounds. The old treatment of cancer by different aniline dye stuffs gave us an idea to use a compound of an organic dye stuff with the selenium. This corresponds to the preparation of Wassermann and Ehrlich in Selen-Eosin. We first used aniline and selen dioxide. Later on we used the selenocyanates. At first we used the sodium salt, later on the potassium salt.

The idea for the use of selenocyanates is this: In the whole body, especially in the saliva, we have sulfocyanates, and these have a very high affinity for the plasma of the cells. In the selenocyanates only the sulphur of the sulfocyanates is replaced by selenium. These soluble compounds are very easily absorbed. Up to this time this preparation is the best we have seen for practical use. Later on it may be that we will use a substituted thiosinamin with selenium in the place of sulphur, or phenylallyl-selenocarbamide or other similar compounds. In all these cases the idea is that the selenium acts upon the tumor cells as a special catalytic agent causing a decreased oxidation of carbon and hydrogen and an increased oxidation of sulphur.

Only a very finely distributed selenium compound of this kind will be sufficiently absorbed and transported by the blood to the tumor. We may give

solutions, powders, pills and other preparations, very well; distributed but coarsely mixed preparations will not be useful. Also all ingredients which are used in these preparations should not be able to react in any way with the selenium.

I think the use of pharmaceutical preparations of inorganic selenium compounds will not be practical for the treatment of cancer. The organic compounds will be in the first line. These organic compounds are used through the mouth, if I am right; and intravenously if Prof. Wassermann is right. The use either through the mouth or intravenously is a very important question for the pharmacist, and I will ask you to pay attention to this point.

Mice can never be treated through the mouth. Mice will never take medicine directly, food mixed with medicine is always refused by them. Even if it were possible you would never know the amount eaten by them. They take the food and carry it from one place to another before eating any amount and make their excrement on the residue. The only way to bring selenium into the system of the mouse is to inject the compound. With human beings this is not necessary. It would be very much more trouble to give this treatment intravenously than to give it through the mouth. I have strong evidence that the intravenous treatment by selenium is very dangerous, whereas the treatment through the mouth is harmless.

Prof. Wasserman has cured mice from cancer in ten days, but in twenty days the cured mice died. We have cured some people and they have not died. But we have also evidence that it would be dangerous if we had not been very careful. We controlled all these cases by exact quantitative urine analyses.

It was found that many derivatives of the cancer had gone into the circulating fluid of the body after the use of selenium. These derivatives are dangerous to the body and can be made less dangerous by a synthesis with sulphuric acid to etherified sulphuric acid. In one case a fifth of a grain was given per day; the case recovered very quickly, but 90 per cent. of the sulphuric acid of the metabolism was used for the etherification of the circulating derivatives of the tumor. A palpatory examination of the tumor showed that it was partly decreased and in different places very much softened.

Without the control with exact urine analysis every patient and every physician would have made the mistake not only as to the further use of the same medicine, but also to increase the doses. We are sure, if we had done so the patient would have died by auto-intoxication. In the selenium treatment of cancer the sulfur-metabolism and especially the amount of circulating absorbed products must be exactly measured. If we give selenium three times a day through the mouth we can find out at what time the treatment must be stopped. If we used intravenous treatment, it would not be possible to give the selenium three times per day for six weeks. If too much selenium is given by intravenous treatment, it works too quickly and when it is too late, we find out that the doses were too high. Therefore my conclusion is that the intravenous treatment is all right for experimental work on mice, but it is very misleading if we want to find a cure for sick people. Our proved cure of cancer goes through the mouth. This is the point wherein we disagree with Wassermann. The druggist should know of this disagreement.

TEST SOLUTIONS OF THE UNITED STATES PHARMACOPŒIA.*

N. A. DUBOIS AND O. H. STRINGER.

Ever since Dr. Lyman Spalding in the year 1817 proposed the formation of a National Pharmacopœia, the subject matter of the U. S. P. has been of the utmost interest and importance both to the pharmacist and the physician. This publication has, by the efficient efforts of various revision committees, passed through eight revisions each of which has brought out new and important advancement; until in the present Eighth Decennial Revision we have an admirable representation of the wonderful efforts of the American people in a strife for the higher ideals of a more ethical, scientific, and righteous standard.

Since, however, man is not omniscient and his mental machine not a perfect one as yet, we find that this standard is not absolutely perfect and necessarily these revisions must go on; and in accordance with the rapid advances in scientific knowledge which our thinkers and research workers are giving us in all branches.

Our work should always be for something better. Something which will help to make knowledge easier to acquire, easier to retain and more definite. Anything which will save time or labor either mentally or physically, or increase the efficiency in the gaining of knowledge or the making of a product, therefore, must be considered as a step in advance.

It seems that the present test solutions of the U. S. P. furnish material for thought along these lines.

In the table are given some of the Test Solutions as found in the Eighth Decennial Revision of the U. S. P. These are simply taken at random from among the solutions frequently used in the regular qualitative tests.

For convenience, they have been arranged in groups of corresponding normality concentrations.

The very concentrated acids and ammonia water are purposely left out because they must necessarily always be of the percentage strength or concentration at which the manufacturer furnishes them to the trade.

Column No. 1 gives the number of the solution as it is here considered, Column No. 2 the name of the chemical, Column No. 3 the chemical formula, Column No. 4 the U. S. P. concentration and Column No. 5 the corresponding weights to produce solutions which are chemically equivalent to each other or a simple multiple of equivalent.

The solutions have also been arranged in normality concentrations which have been found convenient and to give good results in a testing laboratory.

The table must not be taken as in any wise complete, but is simply given as an illustration of conditions as they exist. The figures in brackets give the number of the test solution in the U. S. P.

A brief consideration of this table will show at once that there is no general relation whatever between any two test solutions and their chemical equivalence; and furthermore, no attention is paid to the water of crystallization in the U. S.

*Read before the Northern Ohio Branch, March 1, 1912.

P. concentration, whereas, this must always be weighed with the chemical and should be considered, as it is in the weights taken for the normality concentration.

No.	Name	Acids Dilute, Formula	U. S. P. Concentration	Normality Concentration, Double Normal 2N
1	Hydrochloric Acid (46).....	HCl	10% = 100 gms. per 1000 c.c.	72.92
2	Nitric Acid (71).....	HNO ₃	10% = " " " "	126.10
3	Sulphuric Acid (118).....	H ₂ SO ₄	10% = " " " "	98.08
4	Acetic Acid (2).....	HC ₂ H ₃ O ₂	6% = 60 " " " "	120.08
5	Tartaric Acid (120).....	C ₄ H ₆ O ₆ in	3% = 333.33 " " " "	150.06
<i>Alkalies Dilute.</i>				
6	Sodium Hydroxide (108).....	NaOH	5% = 50 gms. in 1000 c.c.	80.12
7	Potassium Hydroxide (90)...	KOH	5% = 50 " " " "	112.32
8	Ammonium Hydroxide (7)...	NH ₄ OH	10% = 100 " " " "	70.18
<i>Salts.</i>				
9	Ammonium Carbonate	(NH ₄) ₂ CO ₃	Not given in the U. S. P.	96.16
10	Ammonium Carbonate (8)...	NH ₄ HCO ₃ NH ₄ NH ₂		
		CO ₂	20% = 200 gms. per 1000 c.c.	157
11	Ammonium Chloride (9).....	NH ₄ Cl	10% = 100 " " " "	107.06
12	Sodium Carbonate (106).....	Na ₂ CO ₃ .H ₂ O	10% = " " " "	124.10
13	Barium Chloride (19).....	BaCl ₂ .2H ₂ O	10% = " " " "	122.17
14	Calcium Chloride (26).....	CaCl ₂ .6H ₂ O	10% = " " " "	109.51
15	Cobalt Nitrate (32).....	CO(NO ₃) ₂ .6H ₂ O	10% = " " " "	146.00
16	Ferric Chloride (41).....	Indefinite — not less than 22% metallic iron in form of chloride—	10% = 100 gms. in 1000 c.c. Fe	
		Cl ₃		54.11
17	Lead Acetate (55).....	Pb(C ₂ H ₃ O ₂) ₂ .3H ₂ O	10% = 100 gms. in 1000 c.c.	189.51
18	Magnesium Sulphate (59)....	MgSO ₄ .7H ₂ O	10% = 100 " " " "	123.28
19	Mercurous Nitrate (56).....	HgNO ₂	10% of mercury = 131.27	262.34
20	Potassium Dichromate (86)...	K ₂ Cr ₂ O ₇	5% = 50 gms. in 1000 c.c.	49.08
21	Potassium Ferrocyanide (89)...	K ₄ Fe(CN) ₆ .3H ₂ O	10% = 100 " " " "	105.72
22	Sodium Acetate (103).....	NaC ₂ H ₃ O ₂ .3H ₂ O	10% = 100 " " " "	136.14
23	Sodium Phosphate (111).....	Na ₂ HPO ₄ .12H ₂ O	10% = 100 " " " "	119.45
24	Stannous Chloride (115).....	SnCl ₂ .2H ₂ O	10% = 100 " " " "	112.72
<i>Half Normal N/2</i>				
25	Ammonium Oxalate (11).....	(NH ₄) ₂ C ₂ O ₄ .H ₂ O	4% = 40 " " " "	35.54
26	Copper Sulphate (36).....	CuSO ₄ .5H ₂ O	10% = 100 " " " "	62.44
27	Mercuric Chloride (60).....	HgCl ₂	5% = 50 " " " "	67.8

To speak briefly, consider solutions 1 and 6 made according to the U. S. P. Here we have a solution of hydrochloric acid and one of sodium hydroxide.

The ratio of their respective concentrations per unit volume is 100 to 50. In order that the unit volume of the two solutions should be chemically equivalent, this should be 72.92 to 80.12, numbers vastly different from the U. S. P. ratio.

Again consider the U. S. P. weight ratio for solutions. (2) (Nitric Acid) and (8) (Ammonium hydroxide) which is 100 to 100, while the ratio of the weight for a double normal solution of each of these is 126.10 to 70.18. This means of course that if made according to the U. S. P. it would be necessary to go through a calculation to find the number of cubic centimeters of the two solutions equivalent to each other, which gives approximately 126 cc. of the Nitric Acid solution to neutralize 70 cc. of the ammonium hydroxide, whereas if made double normal in both cases we know at once that the same number of cc. of both solutions are equivalent, or 100 cc. of nitric acid would neutralize 100 cc. of ammonium hydroxide.

The convenience accompanying the use of solutions of relative normality equivalent strength is easily seen, even when the sole use is for qualitative tests. One readily becomes accustomed to the volume of precipitate caused by say one cubic centimeter of a normal solution of a certain precipitant. Knowing this and the volume of precipitate of similar composition produced by one cubic centimeter of an unknown solution he can readily estimate the approximate concentration of the particular element in his unknown. It is well known that by this method one can with a little practice estimate within a very few per cent. as to the purity of a salt from a qualitative test or as to the per cent. of a certain impurity in it.

On the other hand, these solutions of relative normality concentration might be made a means of great convenience and time saving in making certain preparations. It is only necessary to keep in mind that equal volumes of all solutions of the same normality are equivalent chemically. That is, one cubic centimeter of any double normal solution will exactly react with one cubic centimeter of any other double normal solution, if a reaction takes place at all. The same thing of course holds for normal and for half normal solutions. Thus 100 cc. of any double normal solution will react with 100 cc. of any other double normal solution, 200 cc. of any normal solution and 400 cc. of any half normal solution.

As an example of a simple class of preparations, suppose it is desired to make a normal solution of ammonium acetate, i. e., one containing one gram molecule per liter (63 grams $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$) or 6.3 gms. in each 100 cc. It is simply necessary to mix 50 cc. of ammonium hydroxide (solution 7 in the table) with 50 cc. of acetic acid (solution 4 in the table).

As an example of the application of these solutions in a more complicated preparation, let us consider the making of Ammoniated Mercury or White Precipitate (mercuric amido chloride— NH_2HgCl). This is made from the solutions of mercuric chloride and ammonium hydroxide. These as is seen from the table are half normal and double normal respectively or $\text{HgCl}_2 = \text{N}/2$ and $\text{NH}_4\text{OH} = 2\text{N}$. Since normal solutions are equivalent and the mercury bichloride is one-fourth the normal concentration of the ammonium hydroxide, the volumes of these two solutions must be mixed in the inverse ratio of 400 cc. of $\text{HgCl}_2 \text{ N}/2$ to 100 cc. of $\text{NH}_4\text{OH} 2\text{N}$.

It is evident that the precipitate will weigh approximately four times the equivalent of 100 cc. of a half normal solution or the equivalent of 100 cc. of a double normal solution, and therefore, since mercuric amido chloride is a divalent salt, it will weigh one-tenth of a gram molecule and by simple inspection of the molecular weight of $\text{NH}_2\text{HgCl} = 249.61$, we have 24.9 grams.

In conclusion it may be said that the use of stock solutions related to the normal solution will in many cases save time and labor in the way of quantitative operations, when only approximations are necessary and will also be effective in materially simplifying calculations and shortening the time necessary in making many preparations.

CLEVELAND SCHOOL OF PHARMACY, DEPT. OF WESTERN RESERVE UNIVERSITY.

SOLUTION OF MAGNESIUM CITRATE.*

JOSEPH W. ENGLAND.

The official formula for Solution of Magnesium Citrate is being considered by Sub-Committee No. 10 of the U. S. P. Revision Committee and suggestions are invited.

C. H. LaWall states that in his analyses of this solution as marketed he has sometimes found a deficiency in magnesium content, and sometimes sulphate in excess of the official limit, indicating the presence of magnesium sulphate. He suggests that standards be given for magnesium content in the residue obtained by ignition, and for maximum content of magnesium sulphate.

The official formula for this widely-used preparation has undergone little change during the past three decades save in the quantities of active ingredients. In 1880, 200 grains of magnesium carbonate and 400 grains of citric acid were called for in the formula, equivalent to 13 grammes of the former and 26 grammes of the latter. In 1890, the carbonate in the formula was increased to 15 grammes and the acid to 30 grammes, or in the same relative proportions as before. In 1900, the formula called for the same quantity of carbonate as before—15 grammes, but increased the acid to 33 grammes.

In 1880, the flavoring was syrup of citric acid (containing citric acid and spirit of lemon); in 1890 it was the same, but in 1900, while the use of syrup of citric acid was continued, tincture of fresh lemon peel was directed to be used in place of the spirit of lemon.

The main criticisms made against the present official solution of magnesium citrate are that it is excessively acid in taste, putting the teeth on edge and causing griping, that it is too weak in flavor, and that, on keeping, it sometimes forms fungus growth.

The increase of acid from 26 grammes in the 1880 formula to 33 grammes in the 1900 formula was made to prevent precipitation and secure a more permanent preparation. But, the quantity of acid should be reduced, if possible, to the lowest point that will insure proper keeping for a reasonable length of time. The solution is not intended to be kept for a long time, but to be prepared freshly when wanted, or in small quantities.

A tentative formula for solution of magnesium citrate was sent to a number of pharmacists by the writer, and the following opinions have been received:

George M. Beringer writes that:

"I have for years followed a formula somewhat along the lines that you propose, but have always used the light calcined magnesia, the magnesium oxide, U. S. P., in place of the carbonate. You are entirely correct in directing the use of *hot* water to dissolve the citric acid. The trouble in making of solution of magnesium citrate is to avoid the introduction of bacteria and spores which not infrequently develop in this solution fungus growth and disagreeable taste in a very short time. There are other points which should be included in an official formula to avoid such introduction. First, distilled water should be used; it should be heated to the boiling point and in this the citric acid dissolved.

*Read before the Philadelphia Branch.

"Magnesium carbonate of the market is usually dried in the air and is more prone to contain bacteria and spores from the exposure in drying than is the calcined magnesia. The very process of calcination destroys thoroughly bacteria then present, and if after preparation it is properly stored it is much less likely to be contaminated in this way than the carbonate. If this change be made in the formula, then one-half as much oxide as the prescribed amount of carbonate will be sufficient.

"I would suggest that the oil of lemon be increased to 0.1 cc. and that it be mixed with the magnesium oxide before addition to the citric acid solution. Purified talc is unnecessary and simply adds another source of contamination.

"Your caution regarding the sterilization of the bottle is very important."

Robert C. Cadmus writes that he uses the official formula, but employs syrup instead of syrup of citric acid, distilled water in place of water, and flavors with a special tincture of lemon peel, using 55 minims to each bottle. The special tincture of lemon peel he makes by adding 30 cc. of oil of lemon to 1000 cc. of the U. S. P. tincture of lemon peel.

William L. Cliffe employs the following procedure in making the solution:

"Dissolve the citric acid in 120 cc. of hot water. Dissolve the oil of lemon in 1 cc. alcohol and distribute evenly through the magnesium carbonate, and add to the citric acid solution. After complete solution, filter through a *wet* paper filter into a strong bottle of about 360 cc., into which has previously been placed the syrup.

"Then add enough water to nearly fill the bottle and drop in the crystals of bicarbonate of potassium and immediately stopper the bottle in a secure manner.

"If it is desired to keep the preparation for more than a day or two, it should be sterilized by placing the bottle in water and bringing to the boiling point, which should be maintained for about 20 minutes."

Henry L. Klopp follows the official formula, but uses syrup in place of citric acid and mixes oil of lemon (1 minim to bottle) with the magnesium carbonate before adding the latter to the acid solution. He prefers to use magnesium carbonate in the *block* form, believing that this yields a more permanent solution than powdered magnesium carbonate.

William E. Lee dissolves the citric acid in hot water, and uses Jennings' light calcined magnesia. As a flavor, he uses oil of lemon (1 drop) and tincture of ginger (9 drops) to each bottle, and employs syrup instead of syrup of citric acid. He filters his solution while hot into a bottle (which has been sterilized with hot water) containing the syrup, then adds enough hot water to nearly fill the bottle, dropping in the crystals of potassium bicarbonate, and immediately stoppers the bottles securely. The solution is kept in a cool place. If a bottle is used a second time for solution of magnesium citrate, he cleans it out with strong sulphuric acid, and then washes it with water until all traces of the acid have been removed.

Richard W. Cuthbert follows the official formula, but sterilizes the bottle, and employs Jennings' carbonate of magnesium, natural spring water, purified talc, syrup, and crystalline potassium bicarbonate. He flavors with oil of orange (0.06 cc.) and tincture of ginger (0.4 cc.). He writes:

"We have been able to keep the preparation prepared as above for a period as long as three weeks and believe it could be kept in a salable condition for even a

longer period. Of course it was kept on ice, but the only sterilization done in its preparation was in boiling the bottles for at least half an hour.

"We credit our success in the keeping qualities of our product to the use of pure water, sterilization of the bottles, the use of oil of orange instead of oil of lemon, filtration through purified talc and the use of crystals of bicarbonate of potassium instead of the tablet usually employed for this preparation, and most of all, by using Jennings' carbonate of magnesium, which is a much superior article to any made in this country."

In this connection, it should be stated that M. D. Allen (*American Journal of Pharmacy*, December, 1911, 564) recommends a formula calling for one ounce (av.) of citric acid, one-half ounce (av.) of magnesium carbonate, two ounces (av.) of sugar, 48 grains of purified talc, and sufficient water to make 12 fluid-ounces, flavoring with 24 minims of a flavoring tincture. The bottles after being filled with the solution are closed and placed in an ordinary wash boiler, covered with water, and boiled for about 30 minutes. The solution so made has been kept for five months. The potassium bicarbonate is added at the moment of dispensing. The flavoring tincture consists of oil of lemon 6 fluid drachms, oil of orange 4 fluid drachms, tincture of ginger 6 fluid drachms, and alcohol sufficient to measure 4 fluid ounces.

The consensus of opinion expressed seems to be that the bottle should be sterilized; that the quantity of citric acid in the official formula should be reduced, if possible; that hot sterile water should be employed in making the solution; that oil of lemon, alone, or with tincture of ginger, should be used in place of the tincture of fresh lemon peel in the syrup of citric acid now required; that syrup should be directed in place of the syrup of citric acid, and that crystalline potassium bicarbonate should be used.

In making a number of bottles of the solution, instead of filtering into individual bottles containing the syrup, as officially directed, it is better to filter into a separate sterile container, and pour the filtrate very carefully down the inside of each bottle upon the syrup, avoiding diffusion of the syrup with the supernatant solution, and then to add the potassium bicarbonate and immediately stopper the bottle. In this way, there is very little loss of carbonic acid gas. The bottle should be laid on its side in a cool place until needed.

Some pharmacists do not add the potassium bicarbonate to the solution until the moment of dispensing; others add it when the solution is made, claiming that the carbonic acid gas in the bottle keeps the air out and makes the solution more permanent.

As to the employment of magnesium oxide or light calcined magnesia in place of magnesium carbonate there are some differences of opinion.

The National Standard Dispensatory (1908, 944) claims that "magnesium carbonate is preferable to the oxide as it is less apt to vary in composition, but if the latter is chosen, 6.23 grammes of magnesium oxide may be used in place of the 15 grammes of the official carbonate."

On the other hand, there are pharmacists who claim that they get better and more uniform results by using light calcined magnesia instead of magnesium carbonate. The U. S. Dispensatory (1907, 725) states that "It is somewhat

more convenient to use calcined magnesia in place of the carbonate, and in one of the best processes we have seen the fifteen grammes of the carbonate in the official formula are replaced by five grammes of Jennings's light calcined magnesia."

It may be added that the Pharmacopœia requires that magnesium carbonate shall yield upon ignition "not less than 40 per cent. of residue, of which not less than 96 per cent shall consist of pure magnesium oxide."

The following formulas are suggested, not for inclusion in the Pharmacopœia, but for the purpose of eliciting discussion, so that they will lead to the framing of an official formula that will give general satisfaction to all sections of the country.

SOLUTION OF MAGNESIUM CITRATE.

Magnesium Carbonate	13	gm.	201	grs.
Citric Acid.....	27.5	gm.	424	grs.
Syrup	60.0	cc.	2	fl. oz.
Oil of Lemon.....	0.05	cc.	1	drop.
Purified Talc.....	5.0	gm.	77	grs.
Potassium Bicarbonate.....	2.5	gm.	39	grs.
Sterile water, a sufficient quantity.				

Dissolve the citric acid in 250 cc. (8 fluid ounces) of hot sterile water, add the magnesium carbonate, and stir until it is dissolved. Then add the oil of lemon previously triturated with the purified talc. Filter the solution, first, into a sterile container, passing the filtrate through the filter repeatedly until it is perfectly clear, and then filter all the solution into a strong sterile bottle holding about 360 cc. (12 fluid ounces), containing the syrup. Add enough sterile water to nearly fill the bottle, drop in the potassium bicarbonate and immediately stopper the bottle securely. Lastly, shake the solution occasionally until the potassium bicarbonate is dissolved. Keep the bottle on its side in a cool place, preferably on ice. The object of this is two-fold; first, to prevent the formation of fungus, and second, to insure the retention of the gas in the solution as much as possible.

By sterile water is meant either distilled water, or the purest obtainable potable water, boiled.

The solution should be made extemporaneously, or as nearly so as practicable.

The bottle used for filling the solution should be previously sterilized by being boiled in water for 15 minutes.

SOLUTION OF MAGNESIUM CITRATE.

Magnesium Oxide.....	5.0	gm.	77	grs.
Citric Acid.....	27.5	gm.	424	grs.
Syrup	60.0	cc.	2	fl. ozs.
Oil of Lemon.....	0.05	cc.	1	drop.
Purified Talc.....	5.0	gm.	77	grs.
Potassium Bicarbonate.....	2.5	gm.	39	grs.
Sterile water, a sufficient quantity.				

Follow general directions of preceding formula.

SOLUTION OF MAGNESIUM CITRATE—SUGGESTED IMPROVEMENT IN METHOD OF MANUFACTURE.*

T. BERNARD TANNER, PHAR. D.

The principal purpose of this paper is to discourage the too frequent use of home made formulæ for this preparation, which in most instances, bring the ultimate product into conflict with the Pure Food and Drug Act, as being a certain form of adulteration, and to prove by practical demonstration that it is possible by a slight modification in the details of manipulation to make a practically stable preparation using the U. S. P. formula.

I might say, at this point, that in my estimation the use of home made formulæ is brought about by the notorious instability of this preparation if made according to the method prescribed by the U. S. P., it being almost impossible to make a solution which will remain perfectly clear under the most ideal conditions for more than three days.

While it is desirable to manufacture this preparation fresh when wanted, still there are many disadvantages in doing so, and since the only deterioration which would seriously affect its therapeutic efficiency are the precipitation which takes place and the formation of a mold, both of which can be prevented, there is no reason why the solution may not be made up in reasonable quantities.

In many localities the sales of "Citrate" are so great that it will make this discussion seem almost unnecessary, but even here we have to take into consideration the possibility of having the customer purchase a bottle and then decide that its use will not be necessary for several days.

It would hardly be reasonable to expect the laity to understand why a preparation which was clear and sparkling when it was purchased, should deposit an inch of "some white powder." Their first conclusion being that they had narrowly escaped an untimely death, and immediately deciding that the pharmacist was incapable. I have had more than one such experience.

Unfortunately a great number of the patrons of every store are ignorant people and in many instances these individuals will not come back for an explanation, but will do all in their power to prevent their fellows from patronizing that particular store.

There has been much written and said about sterilizing the solution. I know a pharmacist who sterilizes every bottle of this solution which leaves his store, he having provided himself with the facility for doing this on a large scale. This, of course, is an ideal method, but it is not only time consuming but is not always practicable for if not done carefully, this process has a tendency to produce a preparation which is darker in color than the U. S. P. article, due perhaps to the caramelization of a small amount of sugar.

In collecting a few samples and persuading the clerks to tell me the method of manufacture used in the store where purchase was made, I found no less than four different formulæ, any of which were good in themselves, but were *not* U. S. P. Upon questioning, I learned that in all cases the employer had tried the

*Read before the Northern Ohio Branch.

U. S. P. formula, but found it impossible to make a stable preparation or one which would last more than two or three days.

I also found a number of pharmacists using the U. S. P. formula modified by substituting one-half the quantity of light calcined magnesia, and carbonating at the time of dispensing.

February 9 I had our Junior class prepare the solution, using the official formula with the modification which I am about to suggest, and also the official formula unmodified. In both cases I used a very poor grade of magnesium carbonate, and tap water, and did not attempt sterilization in any way. The preparations were both carbonated and subjected to the variable temperature of the laboratory.

After standing less than sixteen hours, the solution made by the U. S. P. method had become cloudy, and precipitated to the extent which you observe, after standing twenty-four hours.

The solution by the other method is, as you see, almost clear at the present time, and would be entirely so if it were not for the formation of a very small amount of mold.

The modification which I suggest and the method by which this comparatively stable preparation has been prepared is:

To place the citric acid and magnesium carbonate in a suitable container and add about two-thirds of the required amount of water. After the reaction has taken place and the solution is free from turbidity, the syrup of citric acid is added and enough water to make the required amount, after which the whole is filtered, placed in bottles, and carbonated.

It is obvious that if a preparation made with commercial materials will remain permanent for a month, then it should be possible to make a beautifully sparkling solution which will remain clear indefinitely by taking the precaution to use the best grade of materials and distilled water.

PHARMACEUTICAL LABORATORY, CLEVELAND SCHOOL OF PHARMACY.

THE CONTENTED DRUGGIST.

Contentment is a fine thing. It is the basis of happiness. The man who can be content with his lot does not need a very large lot. He will not have a very large one. The druggist who is so contented that he is satisfied to let well enough alone will find that as the cost of living increases it will become necessary for him to do without many things that he has previously regarded as necessities. Contentment is not a business getting quality. Live wires are not contented. They are restless. Ambition and contentment do not journey along together through life. If you want the kind of happiness that comes with contentment you can have it, but only at the expense of your business success.—*The Spatula*.

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE CHEMIC EXPERT WITNESS.

G. H. MEEKER, PH. D., LL. D.

General. The flow of evidence on the witness stand might be likened to the alternating electric current: the change from attack to defense is the change of polarity; the ordinary witness furnishes a monophase current; and the expert witness furnishes a polyphase current. Or, passing from analogy to fact, court precedents establish a great difference between the ordinary witness and the expert witness. The ordinary witness has the sole function of testifying to the pertinent facts which have come under his personal observation. On the other hand the expert witness has no less than six functions, namely:

- (1) Testimony as to *ordinary facts*;
- (2) Testimony as to *expert facts personally observed*;
- (3) Testimony as to *expert facts observed by others* and within his field and knowledge as an expert;
- (4) Testimony as to his *direct expert opinions*;
- (5) Testimony as to the *opinions held by other experts*;
- (6) Testimony as to his *opinions of other expert opinions*.

The expert's testimony as to ordinary facts includes such matters as his qualifications as an expert; the history of his connection with the case; dates and localities of viewing objects in the case; of persons present during stated times and at stated places; when, how and from whom samples and exhibits were received; histories of samples, etc., before and after being received by him; conditions of containers; and so on indefinitely. What may easily be overlooked in this line of testimony may also be vital to the whole case. For example, if the chemic expert receive a sample which, on the witness stand, cannot be completely and legally identified, then the chemist's labor and testimony are valueless. Such a break in the complete chain of identity of a sample may occur either before or after the chemist receives it. The expert must be careful to provide against this line of attack—which has such great possibilities that one is surprised at the perfunctory manner in which acute counsel often conduct this portion of their examination.

Testimony as to expert facts personally observed, includes such matters as the expert's experience; the rationale and minutiae of his tests; and his personal knowledge of the scientific data upon which his tests, observations and conclusions are founded. This is the most difficult portion of the chemic expert's testimony.

Testimony as to expert facts observed by others, and within his knowledge

and field as an expert include the pertinent recorded facts of science as they are understood by the expert, and employed by him explicitly or implicitly; consciously or subconsciously; correctly or erroneously. This, though unconsciously so, is really the major portion of the scientific expert's testimony—and it is one of the easiest portions. If the recorded facts of science had the same force as the recorded decisions of courts, which conclude judicial proceedings, it would simply be necessary to state the references involved; but, unfortunately, it is a truism that the records of science are not always rigidly exact and that they are a multitude of unprecise or erroneous statements of facts. For example, there exist, as it were, no "supreme court decisions" in chemic records. Practically the only court in which such matters are decided is the "Court of Common Consent" by scientific men. As this court, however, has neither official existence nor official records of decisions, from which citations may be made, the expert essays to guide the court and jury in these matters for the purposes of the trial. His essays may or may not truly reflect the general opinion of scientific men. Thus in drug, food and fertilizer cases, if the chemic expert cited atomic weights from the latest report of the Atomic Weight Committee of the American Chemical Society; drug standards from the United States Pharmacopœia and National Formulary; and food and fertilizer standards from the regulations of the federal and state agricultural departments and from the official methods of the American Association of Official Agricultural Chemists, he would truly report the prevailing scientific decisions in the premises. On the other hand, he might state with Professor Ramsay that certain elements had been transmuted, whereas the general opinion might agree with Mme. Curie to the contrary.

Testimony as to the expert's opinions is of minor importance in chemic expert testimony, but is of major importance in the testimony of most other expert witnesses—such as therapeutists upon the cause of death; of alienists upon the sanity of persons; of handwriting experts upon the authorship of signatures; etc.

This form of testimony when explicitly an opinion is usually based upon a hypothetic question. Ofttimes, however, the expert is asserting as a fact something which upon analysis proves to be but an opinion. The chemic expert should analyze his testimony as carefully as he analyzes his samples; and should preserve in his mind that orderly array of his testimony that will as surely assign to each part its proper sequence, designation and value as his chemic tests should assign to each reported constituent of a substance its proper identity and quantity.

Testimony as to the opinions of other experts: In this phase of his testimony, the expert merely reports without criticism the theories and conclusions which others have stated in speech, journals and text books—in contradistinction to the facts so recorded. He should guard, however, against confounding facts with theories. Much expert testimony is inaccurate owing to the expert's failure, through ignorance or inadvertence, to make clear that particular assertions are theories and not experimental facts. The truly alert cross-examiner will be alive to this distinction; and may in this way often confound an otherwise excellent expert witness.

Testimony as to the expert's opinions of other experts' opinions is ever of major importance. It consists of the expert's critiques upon journal or text book quotations; or upon the evidence of the opposing experts at the trial.

Should there be opposing experts in courts of justice? The answer is, emphatically, yes. Much has been said and written to the contrary. The "battle of experts" has been decried. Chagrined experts have cavilled against the indignities they have imagined themselves to have suffered at the hands of opposing counsel. The serene and beautiful dignity which would maintain were an "official expert" to act alone in guiding the court and jury in all questions relating to his specialty has been pictured. The injury which experts in general suffer in the newspaper and popular imagination because of the extravagant assertions on the part of some experts, and because of the conflicting evidence of opposing experts, has been deplored; and the usual ready cure-all has been suggested. But suggestions for alteration of the present court procedure are, to say the least, amateurish.

While our courts may at times dispense injustice, it is but accidental. On the whole, our court procedure is the very best machinery that man throughout his generations has been able to devise for the protection and happiness of all; and this procedure is based upon the right of trial by jury. A single judge may indeed decide upon questions of law; but his decisions are subject to appeal and revision by a higher court—in which a plurality of judges but constitutes a special kind of jury. It is just as common to have a minority opinion from a court of appeal diametrically opposed to the majority opinion as it is to have two diametrically opposed expert opinions expressed in a trial. Yet one hears no outcry against a plurality of judges; and the judges themselves are not reproached for diversity of opinion. The argument for a single expert is, when carried to its logical conclusion, but parallel with argument for trial without jury, before a one-man court of first and last resort; or for a despotism as against a constitutional monarchy; or for a constitutional monarchy as against a republic.

The mass of accumulated scientific knowledge is so vast, the opportunities for error so abundant, the stimulus to best efforts so active under criticism and so dormant in its absence, that justice is just as surely toned by the "battle of experts" as it would atrophy under the reactionary, un-American policy of the *Expert Overlord*.

The opprobrium of the expert witness. Said Pope in his moral essays:

"Who shall decide when doctors disagree,
And soundest casuists doubt like you and me."

It is a fact that the extravagant and conflicting character of some experts' testimonies have cast just reproach in the lay and legal mind upon expert testimony as a whole. A discussion of this condition is in order. First, is it to be noted that the condition has arisen mainly from the testimonies of handwriting experts and expert alienists. To a lesser degree, general medical experts and real estate experts have contributed to the prevailing impression. On the other hand, engineering and chemic experts, dealing as they do with so-called "exact sciences," have, on the whole, maintained a standard of testimony which is above any save nondiscriminating or captious criticism. The public, however, classes all experts together and does not differentiate between kinds of experts. Neither does it analyze the items of honest difference as seen from two meritorious viewpoints. The meritorious experts are classed with the frail.

Second, the frailty of expert testimony is rarely due to deliberate misstatements. Generally the whole trouble arises from the failure of court, counsel, jury, expert, press and public to keep at all times plainly in view the great difference between the statement of expert *fact* and the statement of expert *opinion*. Expert opinions are continually being rated as expert facts. Human opinions must ever differ—be they expert or otherwise. But real expert facts are more certain than other facts. Thus, a handwriting expert could say without fear of contradiction that a certain chirography exhibits specified characteristics—the writing itself can be examined and his measurements verified. He is then in the same position as an architectural expert who asserts that a building has a certain ground plan and dimensions. When, however, the handwriting expert asserts, with no further evidence than the writings themselves, that two writings were penned by the same person, he is but stating an expert opinion and not an expert fact. It may be a very valuable opinion and most necessary for the purposes of the trial; but it is, nevertheless, an opinion only. It should be clearly recognized as an opinion; every reason for the opinion should be stated with the opinion; and, if an opposing expert gives a contradictory opinion, it should be clearly stated to be an opinion and the pro and contra reasons specified in such language as to make the subject intelligible to the jury which must decide the question at issue. It is no excuse to point to the incapacity of jurymen in the premises. The jurymen may be trusted to reach the conclusion justified by the conflicting expert evidence. If the conclusion reached be false, the fault lies with the losing expert and counsel in not being properly skillful with their portion of the testimony. The court and jury have the right to expect that the counsel and expert will employ whatever time and labor are necessary for the preparation of their side of the case, so as to render it intelligible, in its salient arguments, to the average mind. Much of the criticism of jurymen is really due to the lack of preparation of the litigants. Time and labor, skill and knowledge, are so difficult to bestow in the preparation and conduct of a case—and it's so easy to say, "My failure is due to another's fault." The wise expert will refuse to serve with careless and unskilled counsel; and the wise lawyer will shun the careless and incompetent expert.

Thirdly, much of the trouble with expert testimony is due to the weakness of the expert in not saying promptly, "I do not know," in answer to what might be called "dictionary" questions in his specialty. No man carries in his mind *all* of the data pertaining to his profession—or even to those portions pertinent to the trial in which he may be testifying. If the expert be worthy the name, those data *essential* to his direct testimony; and, in view of the limitations of the human mind, is perfectly justified in saying, "I don't know," with respect to unessentials. That it may wound his pride is beside the point, as court procedure is not concerned with the self-love of experts. The experts—and they, alas, are too numerous—who don't know, but who strive to conceal the fact, either make guesses if they be reckless; or attempt to evade the issue if they be crafty. In both cases they are weak and unworthy.

Fourthly, the ideal expert will, *cacteris paribus*, have a perfectly logical mind; and will successfully resist the guileful methods of opposing counsel in his endeavor to befog and pervert the expert's premises and conclusions. The expert is usually beguiled by the hackneyed artifice of partial or ambiguous truths. The

cross-examiner's question will contain not only a direct question; but also one or more additional statements. The "yes" or "no" in answer to the direct questions leaves the wrong impression with regard to the additional statements. It is absolutely untrue to say, as does the cross-examiner, that any question may be answered "yes" or "no." One may illustrate by the question put to the prisoner accused of stealing a pig: "Did you steal this pig at night?" Obviously either "yes" or "no" carries the admission of theft. This homely illustration portrays clearly the method used so frequently with far more skill and artfulness by many cross-examiners. But if the expert be so beguiled, he is but silly. It is the business and duty of the expert to have his mind so orderly and his case so logically prepared that he will instantly perceive this ancient and moss-grown pitfall of the wily cross-examiner. He will evade it by answering the question as ostensibly asked; and will then insist upon continuing his answer sufficiently far to dispel the designedly erroneous inferences. Here, if he be at all tactful, he will be assisted by his own counsel and the court—but they can only protect his rights after he himself has claimed them.

Whenever an expert is caught in other pitfalls, he usually deserves his discomfiture. A familiar plan of the cross-examiner is to show where the expert's statements on the witness stand are not in harmony with opinions expressed in publications made by the expert. This line of argument is not conclusive, however, for the expert may merely have been quoting others; or may have altered his opinions. Nevertheless, it may be more or less injurious to his case. As another illustration, one may mention a case in the Philadelphia courts where a well known alienist testified that from the horizontal outline of a head at the forehead level he could determine the general mentality of a person. He was subsequently shown a number of such diagrams pricked on paper by the familiar hatters' machine for this purpose. One such diagram, declared by him to be the diagram of an idiot, was subsequently proved to be a diagram of his own head. However, his analysis of this diagram was probably correct.

The expert should avoid unnecessary emphasis of heat—which tend even though falsely, to give the impression of partisanship; but should testify quietly and with simple dignity in good English. He should indulge in no sharp rebuke or repartee. His rebuke should be by inference; and his repartee in the words and with the manner of matter-of-fact statement. This is true no matter how great his provocation.

Fifthly, the expert has often been willing to serve for such an absurdly small and pitiful fee as to preclude the possibility of the extensive care, thought and labor incident to the preparation of a case for court. In chemical work there is absolutely no parallel between analyses made for commercial purposes and analyses made for court. Yet the State of Pennsylvania has, through its agents, offered the magnificent remuneration of 50 cents per determination and \$5 per day for court work in pure food and drug cases. Further comment is unnecessary.

Experience has shown that it may be necessary to give as much as three months hard work to the preparation of a single expert chemic case. One of the chiefs of division of the U. S. Bureau of Chemistry has said (privately) that if he could have a year to prepare each case, he might pose as a chemic expert. While this statement was excessive and made for emphasis of an important truth, it serves

to impress the right ideals and practice in the premises. While no exact time can be defined as the maximum for the preparation of chemic evidence, the general principle may be laid down that it requires so much time and expert skill that fees at least ten times as large as those demanded for the best commercial work should serve as the base price; and that, as with lawyers, physicians and surgeons, the chemists' time and skill should be further rewarded according to his demonstrated efficiency.

Sixthly, experts have often brought discredit upon themselves and their kind by attempting to carry their testimonies as experts beyond that field in which they are strictly qualified as experts. The courts are also to blame for this. The public is beginning to perceive that the present chaotic condition of affairs in governmental inquiries into the effect of sodium benzoate upon the public health is due to this cause. Since the two views so prominently before the public are essentially contradictory, the public knows that at least one view is false—and the shrewd suspicion has arisen that neither side has proved its case. No better example could be given of the frailty of the principle of the rule of the Expert Overlord; nor of the good that would ensue should these opposing experts be placed in such a position that their contentions would have to be conducted and decided under the admirable and orderly process of our American judicial procedure. Let us hope that some great lawsuit will come to clarify this now hopelessly entangled condition of one of the most important economic and hygienic problems in the world today.

THE RATE OF DISINTEGRATION OF PILLS.

L. D. HAVENHILL AND A. E. STEVENSON.

During the past year we have been asked to determine the fitness for medicinal use, of a number of samples of old pills. As a first step in this investigation it was decided to ascertain their rate of disintegration, since it is generally believed that old pills disintegrate, if at all only very slowly.

We endeavored to make the conditions of our experiments as favorable at least as those existing within the human body. In order to secure continued action from the disintegrating solution the pills were placed in wire cloth baskets and suspended in test-tubes about one-half inch below the surface of the 20 cc. of solution. These test-tubes were placed in a water bath and a temperature of from 37° to 38° C. maintained throughout the experiment. The pills were rubbed gently with a glass rod about every five minutes to note the progress of disintegration as well as to simulate the action of the muscular coats of the digestive organs. The effect of this manipulation with the glass rod was subsequently ascertained to have shortened the time of disintegration about 20%.

Two disintegrating liquids were used: No. 1, an aqueous solution containing 2% of pepsin and 0.25% of hydrochloric acid, and No. 2 distilled water. The results given are the means of several trials. The maximum variation in any case was not more than 10% of the mean result. The samples examined were

forwarded to us in their original containers and through the courtesy of the manufacturers we are able to give in a number of instances the date of manufacture. The results obtained together with such other data as might influence the rate of disintegration is given in the following table:

Number	Kind of Pill	Av. time for disintegration in minutes		Kind of Coating	Average Diameter in Mm.	Average Weight in Mfg.	Date of Mfg.	Supply sufficient to last (in years)
		Pep. Sol.	Wat.					
1	Emmenagogue	60	55	Gelatine	7.7x4.9	140	..	..
2	Morphine Sulph., 1-8 gr...	20	14	Gelatine	3.1	26	..	..
3	Iron Strych. & Arsenic tab.	15	9	Sugar	6.1x3.3	140	..	..
4	Acetan. & Quin. Comp. tab.	12	9	Sugar	10 x5.4	420	..	..
5	Antimalarial tablets	79	69	Chocolate	10.6x4.7	430	..	..
6	Creosote Comp. tablets....	30	42	Chocolate	9x4.1	310	..	..
7	Opium, ½ gr. tablets.....	30	28	Sugar	7.3x3.5	150	1897	233
8	Hinkle's Cascara Comp....	77	68	Sugar	6.6	220	..	..
9	Morphine Sulph., ⅛ gr....	14	10	Sugar.	4.9x3.5	50	..	..
10	Cathartic	84	79	Gelatine	9.5x6.5	270	..	..
11	Strychnine, 1-20 gr.....	24	21	Gelatine	4.2x2.9	40	1890*	230
12	Camph. and Opium., 3 gr...	76	72	Gelatine	9.2x5.9	230	1890*	25
13	Asafetida	180	150	Gelatine	9.4x6.2	280	1899	23
14	Ichthyol, 1½ gr.....	180	170	Gelatine	8.6x4.9	180	1890*	32
15	Aloes and Iron.....	61	62	Gelatine	9.4x6.3	270	1890*	32
16	Warburg's Tr.....	67	67	Gelatine	9.8x6.3	260	1891	32
17	Antidyspeptic	65	70	Gelatine	8.8x6.1	270	1889	30
18	Warburg's Tr.....	86	80	Gelatine	8.9x5.9	230	1890*	46
19	Strychnine Nitrate, 1-40 gr.	27	27	Gelatine	4.2x3.2	40	1890*	43
20	Morph. and Atrop.....	18	13	Gelatine	4.5x2.9	50	1889	24
21	Anti Chill	160	530	Gelatine	9.2x6.7	330	1890	35
22	Aphrodisiac	77	66	Sugar	9.3x6.6	340	1890*	25
23	Strychnine Nitrate, 1-30 gr.	25	25	Gelatine	4.5x3.1	30	1899	120
24	Arsenious Ac., 1-20 gr.....	23	22	Gelatine	3.9x2.8	40	1890*	87
25	Nitroglycerin, 1-50 gr.....	26	22	Gelatine	4.2x3.2	40	1890*	53
26	Hepatic	71	65	Gelatine	9.2x6.8	360	1890*	67
27	Calomel, ¼ gr.....	25	20	Gelatine	3.9x2.7	40	1890*	420
28	Pep. Bi. and Strych.....	79	77	Gelatine	9.5x6.3	340	1890*	46
29	Strych. Comp., 2 gr.....	54	52	Gelatine	8.4x5.6	200	1888	39
30	Morph. Sulph., ⅛ gr.....	25	26	Gelatine	4.5x2.9	40	1902	25
31	Opium, 1 gr.....	51	45	Gelatine	6.8x4.1	90	1890*	25
32	Ergotin, 2 gr.....	59	64	Gelatine	9.5x7.2	370	1886*	56

*Made prior to date indicated.

A little more than 50% of the pills were more rapidly disintegrated in water than in pepsin solution. It was thought that the colloidal nature of the pepsin might have been responsible for this but repeated experiments with the solution to which 4% of peptone had been added failed to confirm this opinion. In only one instance, Anti Chill pill No. 21, did the kind of coating make any material difference in the rate of disintegration in the different liquids. This pill had a thick coating of gelatin and required 530 minutes in water or nearly four times as long as in the pepsin solution. Fifty-six per cent. of the pills in pepsin solution and 53% in water were disintegrated within 60 minutes and in each solution 90% were disintegrated within 90 minutes. In most of the cases where disintegration was slow the therapeutic nature of the pill was such that this was not seriously objectionable.

In conclusion it may be said that our results tend to show that the rate of

disintegration depends primarily upon the composition, size, and coating and that the age exerts only a slight influence. These samples were collected from twelve different drug stores, and assuming the demand to be the same in the future as in the past it is interesting to note that the original supplies would be sufficient to last from 23 to 420 years.

NOTE ON CAPSICUMS.

WILBUR L. SCOVILLE.

For many years pharmacists have appreciated the fact that different varieties of ginger vary in pungency and flavor, but that capsicums vary in the same way and to a much greater extent, seems to have escaped attention.

The pungent principle of Capsicum is capsaicin, a crystalline body which E. K. Nelson says is so hot that one drop of a solution 1 in 1,000,000—or less than one-millionth of a grain—will make itself known to the tongue. He found one variety of capsicum to contain 0.14% of this principle.

H. C. Irish in a "Revision of the Genus Capsicum" describes 42 garden varieties and quotes authorities to the statement that the different varieties readily degenerate or change under cultivation or the lack of it. Hence the pungency of capsicum varies not only with the species, but with variations in growth or cultivation. Paprika, one of the mildest forms, has been grown quite free from capsaicin—in short, a non-peppery pepper. And while Tabasco by another name might be quite as hot, yet the Tabasco species may not always come up to its reputation.

In other words, the pharmacist cannot, by specifying a certain species of capsicum, be sure thereby of securing the most active medicinally. The best method of selection appears to be the physiological test—which will be referred to again below.

In commerce the greater demand for capsicum is as a condiment, and for the preparation of sauces, pickles, etc. In these a full rich flavor is desired as well as pungency. Supplies for such purposes are marketed as "Japan Chillies," "Zanzibar Chillies" and "Mombasso Chillies." Doubtless there are other brands, but these appear to be the leading ones. A limited number of tests on these three brands shows that Japan Chillies have a very rich and full flavor, but are not very pungent, as compared to the others. They command a higher price, and make a superior condiment. Zanzibar Chillies came next in pungency and flavor, and Mombasso Chillies are the most pungent and the poorest in flavor.

Physiological tests are tabooed in some quarters, yet when the tongue is sensitive to less than a millionth of a grain it certainly has an advantage over the analytical balance, which has a sensitiveness far below that, and since it is not necessary to compare different capsicums in terms of percentage of capsicum, when a direct ratio of drug to drug expresses all that is needed, the physiological test offers here a ready and satisfactory means of selecting capsicum.

¹Journal Ind. and Eng. Chem., 1910, page 419.

²Report Mo. Bot. Gardens, 1898, page 53.

The method I have used is as follows: One grain of ground capsicum is macerated over night in 100 cc. of alcohol. After thorough shaking, filtered. This alcoholic solution is then added to sweetened water in definite proportions until a distinct but weak pungency is perceptible on the tongue.

By this method, Japan Chillies tested 1 in 20,000 to 1 in 30,000, Zanzibar Chillies 1 in 40,000 and 1 in 45,000 (two lots), and Mombassa Chillies 1 in 50,000 to 1 in 100,000. From a limited number of tests the Mombassa brand appears to be decidedly stronger in capsaicin. We have not had it under observation long enough to decide on a limit of acceptability that will represent the average of the drug, but there appears to be no trouble in obtaining it of a strength of 1 in 50,000 or above.

Oleoresin of capsicum may test 1 in 150,000 and upwards. When used as a rubefacient, flavor is of no consequence, but a high capsaicin content is desirable.

It may be of interest to state that commercial capsicums vary also in fat-content and color to a marked degree. Oleoresins were examined which contained as little as 5 per cent. of fat insoluble in alcohol, while others contained above 50 per cent., yet the more pungent oleoresin (based on the entire mixture) were those containing considerable fat. The fat in some instances was a marked green—quite free from red; in others it was orange and in others a deep red; no relation of color or fat to pungency could be observed.

LABORATORY OF PARKE, DAVIS & CO., DETROIT.

DISCUSSION.

Mr. Beringer said that much fat would always be found in a well-developed fruit containing well-developed seeds, and that in the selection of capsicum we should avoid large matured fruits in which the seeds were fully developed.

Mr. Raubenheimer inquired of the author of the paper whether he had discovered any relation between the color of the ground capsicum and the finished tincture? In his experience he had not been able to discover any such relation. No matter what was the tint of the powdered drug the tincture always had a reddish color.

Mr. Eldred inquired if the quantity of fat in the oleoresin did not bear some relation to the pungency?

Mr. Scoville, in reply, stated that his work had begun as a study of the oleoresin, separating the fats insoluble in alcohol. He found the fats to vary from 5 to 50 percent. One containing 5 percent of fat was comparatively weak in pungency, those having the larger pods being more pungent, though he did not believe that this was due to their containing a large amount of fat; neither could he discover any relation between the pungency and the color of the capsicum.

The only test he had found to be satisfactory was the physiological test. He had examined a number of samples which tested 1 to 100,000.

THE ASH CONTENT OF DRUGS.

M. I. WILBERT.

In recent years there has been evidenced a growing disposition to place considerable reliance on the ash content of drugs as an aid in determining the nature and purity of the product under examination.

With a view of ascertaining what if any uniformity exists in the permissible

ash content of official drugs an analysis of the requirements made in 10 of the recently published pharmacopœias was made and the maximum ash content of some of the more widely used drugs is herewith presented in the form of a table.

Restricting the permissible quantity of ash in connection with vegetable or crude drugs is a comparatively modern requirement. It was introduced in the second edition of the German Pharmacopœia, published in 1882 and also appears in connection with a limited number of the drugs described in the U. S. P. of the same period. The number of official limitations for ash was increased but slowly and in the German Pharmacopœia for 1900 we find but twelve while in the corresponding U. S. P. VIII there are twenty such requirements in connection with the monographs for crude drugs.

The Netherlands Pharmacopœia published in 1905 appears to have been the first of the more widely known pharmacopœias to include an appreciable number of ash determinations; a total of 41.

In the Ph. Austr. VIII, published in 1906, this number is increased to 147, the maximum up to the present time, though the aggregate of the Ph. Helv. IV is nearly if not quite as great.

The Ph. Svec. IX, published in 1908, contains but a comparatively few definite figures, and the Ph. Hung. III, published in 1909, despite the fact that it follows the Austrian Pharmacopœia in many of the official requirements, includes but a limited number of limitations for ash.

The German Pharmacopœia which for some decades appears to have served as a model for the elaboration of our own U. S. P. has been continued within conservative lines and the new D. A. B. V. published in 1910 contains but a total of 34 requirements for ash content.

The impracticability of deducing any definite generalizations from the permissible limitations for ash included in the several pharmacopœias is well illustrated by the appended table. For many of the drugs the figures vary from 10 to 100 per cent. and in the limited number of cases where there is little or no variation, lupulin, for instance, the figures given have been found to be altogether too low for the commercially available product.

The variation in the actual ash content of drugs necessarily depends on many factors that are entirely beyond the control of the pharmacist or the dealer in drugs but the frequently observed variation in the ash content of the same sample, or lot of a drug is due to causes that are deserving of careful consideration on the part of the revisers of the Pharmacopœia. The fundamentally important factors for securing uniformity are to be sought in the method of incineration and the method of sampling employed therewith.

In the routine work of the ordinary analytical laboratory it is impracticable to incinerate more than 1 or 2 gm. of a sample of crude drug and it is quite apparent that it would be difficult indeed to secure a representative sample of a root, bark, leaf or herb that could be relied upon without resorting to comminution and subsequent mixing of an appreciable quantity of the drug.

This difficulty of securing representative samples of many crude drugs has no doubt deterred the revisers of some of the more recent pharmacopœias from adopting the ash content factor more freely.

It is generally agreed that the exact method of determining the residual ash should be described so as to obviate, if possible, the likelihood of the residue retaining an undue amount of unconsumed carbon.

The Ph. Austr. VIII despite the fact that it includes upwards of 150 limitations for the ash content of drugs does not provide a method for determining this rather important requirement, and the several critics of this Pharmacopœia have not failed to assert that the commission in charge of the revision adopted theoretic rather than practical standards for many of the pharmacopœial drugs.

The Ph. Helv. IV directs that ash determinations are to be made by heating from 1 to 2 gm. of the substance at first moderately, with a low flame, and then gradually increasing the temperature until the residual ash is free from carbon.

The nature of the container in which the substance is to be incinerated is not specified and no provisions are made for aiding the combustion of protected carbon particles.

The new German Pharmacopœia process is much more complete. It directs that a suitable quantity of the substance is to be incinerated in a recently heated and tared crucible and in the event that complete combustion of the carbon particles is not brought about by continued, moderate, heating the material is to be leached out with hot water and the residual carbon again heated, as before. The resulting solution is subsequently evaporated and the weight of the dry residue is added to that of the ash.

This, Ph. Germ. V, method has been liberally criticised, many pharmacists believing that the leaching out method is much more time consuming than the methods which involve the use of clean sand for distributing the particles of carbon or the use of oxygen carriers such as nitric and oxalic acids for facilitating combustion.

Considerable difference of opinion appears to exist regarding the desirability of determining the ash, and other analytical factors, on the air dried drug or on the drug dried to constant weight in an exsiccator.

In view of the fact that it is the air dry drug that appears in commerce and is generally used in the making of galenical preparations as well as dispensing it would appear preferable to base pharmacopœial requirements on the commercial drug and to add such other restrictions as may be found necessary to limit the percentage of contained moisture.

This is apparently the view taken by the revisers of the German Pharmacopœia as that authority now requires that the official tests are to be applied to the air dried substances unless otherwise directed.

From the available evidence it would appear that the determination of the ash content of official drugs is practicable and important in connection with non-structural drugs, like gums and resins, pollen grains, seeds, spices and powdered drugs generally.

It is not generally applicable to leaf drugs, barks or roots in the uncomminuted form because of the difficulty of sampling.

To insure correlating results the method to be employed must be described, and, other things being equal, this method should be one that can be easily followed by retail druggists ordinarily well equipped for work of this kind.

TABLE SHOWING THE MAXIMUM ASH CONTENT OF SOME WELL-KNOWN DRUGS INCLUDED IN 10 OF THE RECENTLY PUBLISHED PHARMACOPŒIAS.

Title of Drug.	Ph. Germ. V	Ph. Hung. III	Ph. Ital. III	Ph. Fr. V	Ph. Svec. IX	Ph. Helv. IV	Ph. Aust. VIII	Ph. Belg. III	Ph. Ndl. IV	Ph. U.S.P. VIII
Acacia	5.0	5.0	4.0	...	5.0	4.0	3.0	5.0	4.0	4.0
Adeps Lanæ	0.1	0.05	...	...	...	...	...	0.05	0.10	0.30
Aloe	1.0	...	2.0	1.5	...	1.5	1.0	...	1.5	...
Althæa .....	...	...	...	...	...	6.0	6.0	7.5	7.0	...
Amylum	1.0	0.5	1.0	1.0	...	0.5	0.5	1.0	1.0	...
Anisum	10.0	...	...	...	...	10.0	10.0	12.0	...	...
Asafœtida	15.0	...	10.0	10.0	10.0	20.0	10.0	10.0	10.0	15.0
Belladonnæ Folia.....	15.0	...	...	...	...	15.0	15.0	...	...	...
Benzoinum	2.0	...	2.0	2.0	...	1.5	2.0	...	2.0	2.0
Calumba .....	...	...	...	...	...	8.0	6.0	...	...	...
Cantharis	8.0	...	7.0	...	...	8.0	8.0	...	9.0	8.0
Capsicum	6.5	5.0	...	...	...	6.5	6.5	...	...	...
Carbo Ligni.....	5.0	...	2.0	...	...	2.0	...	...	2.0	...
Cardamomum .....	...	...	...	...	...	10.0	8.0	...	8.0	4.0
Carum	8.0	...	...	...	...	8.0	7.0	...	...	8.0
Caryophyllus	8.0	...	...	...	...	7.0	8.0	...	6.0	8.0
Cinchona .....	...	...	6.0	...	...	6.0	6.0	...	8.0	...
Cinnamomum										
Zeylanicum	5.0	...	...	...	...	5.0	5.0	7.0	8.0	4.0
Coccus .....	...	...	...	...	...	6.0	...	...	...	6.0
Cubeba	8.0	...	9.0	...	...	8.0	9.0	...	10.0	...
Digitalis .....	...	...	...	...	...	10.0	10.0	12.0	...	...
Ergota .....	...	...	5.0	...	...	5.0	5.0	...	5.0	...
Fœniculum	10.0	...	...	...	...	10.0	10.0	12.0	...	...
Gelatina	2.0	...	2.0	2.0	...	2.0	2.0	2.0	3.0	...
Gentiana .....	...	...	...	...	...	6.0	5.0	7.0	6.0	...
Glycyrrhiza .....	...	...	...	...	...	6.0	6.0	7.5	6.0	...
Gossypium Purificatum	0.3	...	0.3	0.4	...	0.5	0.5	0.3	0.3	0.3
Granatum .....	...	...	...	...	...	15.5	10.0	...	15.0	...
Hydrastis .....	...	...	6.0	...	...	6.0	6.0	...	6.0	...
Hyoscyamus	24.0	...	...	...	...	...	...	...	...	...
Ipecacuanha .....	...	...	4.0	...	...	4.0	5.0	...	6.0	...
Jalapa	6.5	...	4.5	...	...	6.5	5.0	...	...	...
Linum	5.0	...	6.0	...	...	5.0	5.0	...	...	...
Lupulinum .....	...	...	10.0	...	...	10.0	10.0	...	...	10.0
Lycopodium	3.0	...	4.0	...	...	3.0	3.0	4.0	5.0	5.0
Manna	3.0	...	3.5	...	4.0	3.0	4.0	...	...	...
Mel	0.8	...	0.4	...	0.5	0.8	0.4	0.5	...	0.3
Myrrha	7.0	...	6.0	...	6.0	6.0	6.0	6.0	5.0	...
Nux Vomica.....	3.0	...	...	...	...	3.5	3.0	...	...	...
Opium .....	...	...	6.0	...	...	6.0	6.0	...	...	...
Rhamnus Purshiana...	6.0	...	...	...	...	...	...	...	10.0	...
Rheum	12.0	...	12.0	...	...	13.0	12.0	...	12.0	...
Saccharum	0.1	...	...	0.075	...	...	...	...	0.1	...
Saccharum Lactis....	0.25	...	...	...	...	0.2	...	...	0.1	0.25
Scilla	5.0	...	...	...	...	5.0	8.0	...	...	...
Senna	12.0	...	...	...	...	12.0	10.0	12.0	8.0	...
Sinapis .....	...	...	5.0	...	...	5.0	5.0	5.0	8.0	...
Stramonium	20.0	...	...	...	...	...	...	...	...	...
Valeriana .....	...	...	...	...	...	12.0	10.0	15.0	...	...
Zingiber	7.0	...	...	...	...	7.0	5.0	...	8.0	...

DISCUSSION.

Mr. Beringer stated that the figures for ash content in Mr. Wilbert's paper were very similar to other compilations, and inquired whether any of the results given had been confirmed by his own experiments or were taken from published results.

Mr. Wilbert stated that both the Netherlands and Austrian Pharmacopœias had been severely criticised on their generally low ash content requirement for drugs and that the figures cited were largely academic. Practically all the pharmacopœial standards are in sub-

stantial agreement for the ash content of Lupulin, but are not in accordance with actual commercial conditions, which are nearly twice as high as pharmacopœial standards.

Observations relating to ash content, in order to be of practical value, must cover hundreds of thousands of samples, be carried over a series of years and made by a number of observers.

In the Digest of Criticisms of the Hygienic Laboratory an effort had been made to compile ash determinations recorded by different individuals, and also the work done in European laboratories in connection with spices. For the majority of vegetable drugs he thought it necessary to be content with ash determinations, permitting rather wide limitations for drugs in the powdered form.

THE COMPOSITION OF GELSEMININE.

L. E. SAYRE.

The alkaloids of Gelsemium have been investigated at intervals since 1869, by Wormley, Gerrard, Robbins, Sonnenschein, Thompson and others. These valuable contributions have been referred to in previous papers, published in the proceedings of this association since 1907.

It was not until 1887 that F. A. Thompson announced the existence of a second alkaloid in the root which he named Gelseminine. The study of this second principle was left by Thompson for others who might in the future have the time and the inclination to do it. The result of my study of this principle seems to indicate, as stated in former papers, that the Gelseminine of Thompson is not a definite and simple body. Recent study confirms this opinion. Other confirmation, than my own work, has been given by a recent analyst, Charles Watson Moore, whose paper was published in the Jour. Chem. Soc'ty, Nov., 1910, No. LXXVII, p. 2223. This author, after mentioning the less important principles of the alcoholic extract states:

"The portion of the alcoholic extract soluble in water from which the resin has been removed contained scopoletin (a monomethyl ether of esculetin) which was present in a free state and also a glucoside, together with some sugar. It also yielded three alkaloidal products, one of which was obtained in a pure crystalline form corresponding to Gelsemine. The other two were amorphous and non-crystalline, the one to which the name Gelseminine has been given being more basic than the other."

This unexpected confirmation of my observations, previously made, is especially gratifying.

In the April issue of the Bulletin of the A. Ph. A. an article appears by Kimberly, Roberts and Vanderkleed, in which a suitable assay of Gelsemium is discussed. These men state that the activity of the drug depends primarily upon the so-called alkaloid Gelseminine, and only secondarily upon the more readily obtained Gelsemine, which exists in much larger proportion. These investigators fail to recognize the presence of three alkaloids, but this does not detract from their valuable contribution. The existence of three alkaloids, however, makes the assay of the drug still more complicated. A chemical assay can be made reliable only when we *know* the principles we have to consider.

During the past year a further study of this non-crystalline alkaloid, gelsemine, has been attempted. For this investigation, crude products were furnished by Chas. E. Vanderkleed, of the Mulford Laboratory. These products consisted of the crude alkaloids from 50 pounds of the drug, as follows:

Gelsemine, 0.44 gm.; Gelseminine, 6.4 gm.

Special attention was given to the latter. The process for the separation of these, although given in former papers, may be briefly outlined. The concentrated alcoholic extract is treated with acidulated water. The resulting acidulated aqueous solution is thoroughly washed until all of the so-called gelsemic acid is removed. The aqueous solution is then made alkaline and all of the alkaloid removed by repeated shaking with ether-chloroform. After removal of the solvent by evaporation of the ether-chloroform solutions, the residue (crude alkaloids) is separated into crystalline and non-crystalline alkaloidal portions by repeated solution in alcohol and careful evaporation in vacuo., thus allowing the crystalline gelsemine to slowly deposit. The mother liquor contains the gelseminine.

This latter alkaloid, gelseminine, is capable of further separation, I have found. If after all of the gelsemine is entirely removed—which is a tedious operation—it is redissolved in acidulated water and again precipitated with weak solution of ammonia and the precipitate continuously washed with ammonia water it is found to yield alkaloid to that solvent until there is left behind an insoluble portion, this latter portion may be designated Gelseminine. The portion soluble in ammonia, on concentration by means of a hot air blast produces, in thin layer, a reddish yellow scale, strongly alkaloidal, but contains a considerable amount of crystals of ammonium chloride. This contamination is removed by redissolving the scales in water, adding to the solution calcium hydrate. The solution is fanned to a solid concentrate and the solid residue is dissolved in alcohol and filtered. The alcoholic solution is treated with just sufficient sulphuric acid to remove the lime. On filtering and evaporating, the alkaloidal salt remains. For the name of this third alkaloid I would suggest the name of Gelsemoidine.

Permit me to call attention in passing to the confusion which exists at present in commerce, particularly, concerning the alkaloid gelseminine. Under this name is supplied, not the article in question, but the crystalline alkaloid gelsemine. The Germans appear to be responsible for this confusion as gelseminine appears to be their name for the crystalline alkaloid. My own orders for gelseminine have brought me, from abroad, gelsemine. In a recent issue of a publication on Newer Remedies, gelseminine is described as a crystalline body, and the description given answers to the alkaloid Gelsemine. In the presence of such confusion I would suggest the name of Sempervrine in place of gelseminine, or some other word which will tend to remove the unhappy confusion that now exists.

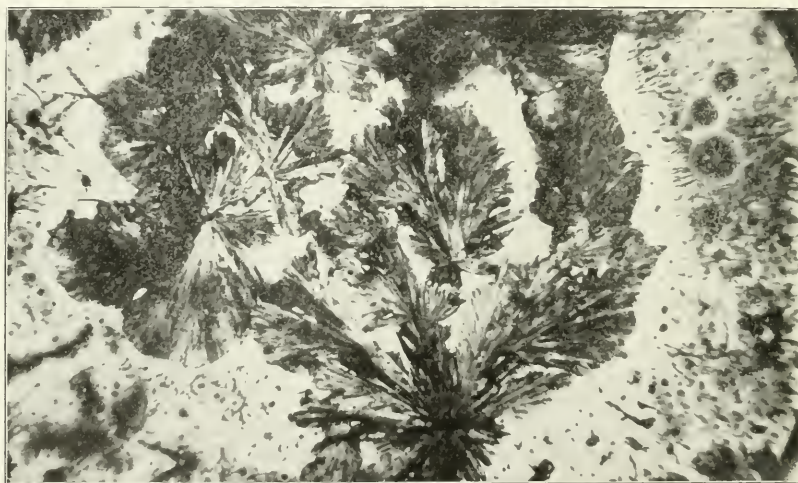
The following color reactions distinguish Gelsemoidine from the other two alkaloids: manganic oxide and sulphuric acid produce with gelsemoidine, first a deep purple. Changing finally to a deep blue. Gelseminine, with the same reagent produces a brown, changing to a brownish pink and finally to a yellow color. Gelsemine produces a crimson, changing to green and finally yellow.

The non-crystalline alkaloids may be further distinguished by their solubility. An aqueous solution of the gelsemoidine hydrochloride, when treated with ammonia water in slight excess will be, after first precipitating, redissolved in the alkaline fluid. Gelseminine when treated in the same manner remains undissolved. Gelsemine hydrochloride when treated similarly goes into solution very slowly but is hastened by warming. Not so with gelseminine hydrochloride.

Many attempts have been made to produce crystalline salts from these two amorphous alkaloids but without success. Gelsemoidine hydrochloride can be obtained in reddish yellow scales which are exceedingly hygroscopic. Gelseminine hydrochloride is on the other hand quite permanent.

PHYSIOLOGICAL RELATION OF THE ALKALOIDS.

Pharmacological experiments have shown that the amorphous alkaloids are many more times toxic than the crystalline gelsemine. It takes 10 milligrams of the gelsemine hydrochloride to cause slight tremors and convulsive movements in



Photograph of Crystals of Gelsemine Hydrochloride. By spontaneous evaporation of alcoholic solution

a guinea pig of medium weight (450 gm.), in 45 minutes, while 3 milligrams of gelseminine hydrochloride will prove fatal to this animal, of same weight in 30 minutes. It has pronounced action on the voluntary muscles, loss of coördination and a paralytic action on the respiration.

1.5 mgs. of gelsemoidine hydrochloride proved fatal to a guinea pig weighing 425 gm. in one and one-half hours, the most pronounced action being upon the voluntary muscles and the respiration. Severe muscular spasms (not tetanic like strychnine) were brought on within 30 minutes. This same alkaloidal salt produced a pronounced stupor on a dog weighing 29 pounds in 45 milligram dose. The action was gradual but rapid.

In all of the physiological experiments it was noted that the two non-crystalline alkaloids in small therapeutic doses had an hypnotic and sedative action.

I am indebted to V. H. Moon of the Pharmacological Laboratory for the following statement as regards the action of the non-crystalline alkaloids of Gelsemium:

"The toxic action of the two alkaloids is almost identical. The muscles become paralyzed and the body limp and relaxed. The respiration is slowed, becomes jerky, labored and irregular and finally ceases apparently from paralysis of the motor endings in the respiratory muscles. The heart's action is slowed and in the later stages, often irregular but continues strong until after respiration ceases. The constrictor urethrae muscles are also paralyzed, causing frequent urination and dribbling. The smallest lethal dose for a 35 gm. frog was .003 gramme and the largest dose which was followed by recovery was .004 grammes. For the 340 gramme guinea pig, the smallest fatal dose was .001 gramme and the largest dose followed by recovery was .002 gramme.

"The medicinal effect of gelsemoidine in no way resembles the toxic effect, but consists of a quieting, sedative action, followed by a hypnotic effect if continued. The following typical example illustrates: A 13 kgm. dog was given a subcutaneous injection of .015 grammes gelsemoidine. Almost immediately the dog became less restless and was disposed to lie prone with head resting on paws; he was apparently normal otherwise and was attentive when spoken to. The respiration rate dropped from 42 to 22 and the heart rate from 137 to 114. This effect was partly due to the fact that the animal was less active. Within an hour the hypnotic effect was evidenced, the animal slept continuously and when roused would lie down immediately and go to sleep again unless prevented. A second injection of .015 grammes one hour later made the hypnotic effect more profound and reduced the heart rate from 114 to 41. Respiration from 22 to 20. A third injection of .015 grammes was given forty-five minutes later, after which the dog immediately went into profound sleep. When roused, he was attentive and wagged the tail as usual but was slightly unsteady on the feet. Twenty minutes after this dose the respiration was 20 per minute and somewhat labored. The heart rate raised to 50. When walking or standing the fore feet would suddenly collapse causing the animal to fall on its face. Muscular control would be regained only to be lost again in a moment. This was accompanied by loss of urethral control. The condition of partial paralysis continued several hours but the dog was apparently normal twenty-four hours later. No attempt was made in these experiments to record the blood pressure nor to determine definitely the exact location of the effect on the nervous system. Only the general physiological effects were sought, but these would indicate that both the cerebrum and the motor endings were affected. As a sedative and hypnotic the new alkaloid Gelsemoidine gives unusual promise, and the therapeutic and physiological effects should be worked out in further detail.

"Some experiments were tried with Gelsemine which is described as *inactive* by some authorities. We secured very decided muscular and nervous effects in guinea pigs from subcutaneous injection of .010 grammes, but these were not carried far enough to state definitely what the physiological effects are. Judgment

should be suspended on this remedy until more definite statements can be made as to its action."

My thanks to Mr. Paul Carl for his valuable assistance in this work is hereby acknowledged.

UNIVERSITY OF KANSAS.

COMPARISON OF THE SENSITIVENESS OF THE FEHLING, THE NYLANDER AND THE PHENYL-HYDRAZINE TESTS FOR THE DETECTION OF DEXTROSE IN URINE.

G. H. MEEKER, PH. D., LL. D.

Preparation of the Dextrose.—The highest purity dextrose prepared by Merck & Co. was used in these experiments.

Owing to the presence of moisture in the dextrose, which would affect the weight of the dextrose when used for the purpose of making percentage solutions, the dextrose was dried to constant weight under a pressure of 125 mm., over calcium chloride, in a vacuum desiccator placed in a thermostat at a constant temperature of 37.5° C. The absorption of water during weighings was prevented by having the dextrose in a glass stoppered weighing bottle.

Date.	Weight.
October 5	26.0951 gms.
October 12	26.0894 "
October 19	26.0868 "
October 20	26.0865 "
October 26	26.0865 "
October 27	26.0866 "
November 2.....	26.0865 "
November 3.....	26.0865 "

This table shows that, under the conditions of our experiments, constant weight was reached at the end of fifteen days' drying. Although drying was continued during another fifteen days, there was no further loss in weight.

Preparation of the Dextrose Solutions.—The dextrose solutions were prepared as needed by dissolving weighed quantities of our dried dextrose in the proper quantities of distilled water.

Nylander's Reagent used in these experiments was made as follows:

Bismuth Subnitrate.....	2 gm.
Sodium Hydroxide.....	8 gm.
Rochelle Salt.....	4 gm.
Distilled Water to make.....	100 cc.

Two kinds of Fehling's Solutions were used in these experiments, as follows:

1. (a) *Copper Solution:*

Cupric Sulphate.....	34.639 gm.
Distilled Water to make.....	500.000 cc.

(b) *Alkaline Solution:*

Sodium Hydroxide.....	175 gm.
Rochelle Salt.....	60 gm.
Distilled Water to make.....	500 cc.

Of these solutions equal parts were taken and mixed fresh each day that the experiments were carried on.

2. A dilute Fehling's Solution, as suggested by Prof. Judson Dalaud, consisting of one part of Fehling's Solution No. 1 and two parts of water.

Methods Employed in Conducting the Tests.—In conducting these comparison tests, the following procedure was adopted: Fresh aqueous solutions of dextrose of known strengths were first prepared. All of these solutions were subjected to each of the four tests under comparison until we reached that dilution of dextrose at which each test failed to respond. The technique adopted was the same as if urine had been employed.

Nylander's Test.—Five cubic centimeters of the dextrose solution are boiled in a test tube. Five drops of the reagent are then added and the boiling continued for three minutes. The appearance of a dark color indicates the presence of dextrose.

Fehling's Test.—(Conducted in same manner for solutions 1 and 2): Ten cubic centimeters of the reagent are boiled at least two minutes in a test tube, and then carefully examined to see that no deposit has formed, thus showing that the reagent is not contaminated by a reducing substance. Fifteen drops of the dextrose solution are then added and the mixture slowly brought to a boil, when the appearance of a red or yellow precipitate indicates the presence of dextrose in the solution.

After several preliminary tests it was found that if more than fifteen drops of urine, containing dextrose, are added to the reagent a dirty green, non-characteristic appearance is produced. Consequently the above amount was chosen for these tests to correspond to the maximum quantity of urine that can be employed in the Fehling tests.

Phenyl-hydrazine Test.—Half fill a beaker of convenient size with water and then set it on a tripod and heat to boiling. Half fill a six inch test tube with the dextrose solution; make the solution slightly acid with acetic acid; and then set the test tube with its contents in the water in the beaker. While waiting for the water to boil, prepare the phenyl-hydrazine reagent (fresh for each experiment, as it does not keep well). Weigh out, roughly, one gram phenyl-hydrazine hydrochloride and two grams sodium acetate; mix the salts; dissolve them in ten cubic centimeters of distilled water; acidulate the solution by the use of about five drops of strong acetic acid; and, finally, filter to clarify. After the water in the beaker has boiled for about five minutes, observe the contents of the test tube and filter if necessary. Measure into a test tube about ten cubic centimeters of the clarified solution under examination and add five cubic centimeters of the prepared, clear, filtered reagent. Mix well and then place in the boiling water in the beaker and continue to boil for one hour. Remove the test tube and allow to cool thoroughly, when, if dextrose be present, a yellow crystalline precipitate will appear.

This precipitate under the microscope appears as yellow, needle-shaped crystals often arranged in rosettes, fans or sheaves.

Results of the Experiments.—The results of the experiments are shown in the accompanying table:

TABLE SHOWING THE SENSITIVENESS OF THE FOUR TESTS.

Percentage Strength of Dextrose Solutions	Fehling's Test (No. 1—ordinary)	Fehling's Test (No. 2—dilute)
0.5	Positive	Positive
0.25	Positive	Positive
0.125	Positive	Positive
0.0625	Positive, after standing 5 minutes	Positive
0.03125	Positive, " " " "	Positive, after standing 5 minutes
0.015625	Positive, " " " "	Positive, " " " "
0.01	Positive, " " " "	Positive, " " " "
0.009	Positive, " " 10 "	Positive, " " " "
0.008	Positive, " " " "	Positive, " " " "
0.007	Positive, " " " "	Positive, " " 10 "
0.006	Positive, " " " "	Positive, " " " "
0.005	Positive, " " " "	Positive, " " " "
0.004	Positive, " " 15 "	Positive, " " 15 "
0.003	Positive, " " " "	Positive, " " " "
0.002	Positive, " " " "	Positive, " " 30 "
0.001	Positive, " " 20 "	Positive, " " " "
Percentage Strength of Dextrose Solutions	Phenyl-hydrazine Test	Nylander's Test
0.5	Positive before cooling	Chocolate Coloration
0.25	Positive " "	Dark Amber "
0.125	Positive " "	Dark Amber "
0.0625	Positive after " "	Light Amber "
0.03125	Positive " "	Light Amber "
0.015625	Positive " "	Negative
0.01	Positive " "	
0.009	Positive " "	
0.008	Positive " "	
0.007	Positive " standing $\frac{1}{2}$ hour	
0.006	Positive " " " "	
0.005	Positive " " 1 "	
0.004	*Negative " " 1 "	
0.003	*Negative " " 1 "	
0.002	*Negative " " 1 "	
0.001	*Negative " " 1 "	

*A deposit formed; but microscope showed no characteristic crystals.

Conclusions.—From the above experiments we concluded:

1. That Nylander's test is of no value for proportions of dextrose under 0.5 per cent.
2. That the ordinary strength of Fehling's solution is the most sensitive of the four tests we have examined and that even with a dilution of 0.001 per cent. it still yields positive results after standing twenty minutes.
3. That the dilute Fehling's solution shows a high sensitiveness and is in this respect slightly superior to the phenyl-hydrazine test.
4. That the phenyl-hydrazine test shows a high sensitiveness and that its limit of sensibility is about 0.005 per cent. after standing one hour.

Practical Application.—With regard to sensibility, the Fehling test and the phenyl-hydrazine test are both so satisfactory that they leave nothing to be desired

for clinical purposes. The Fehling test is superior to the phenyl-hydrazine test in ease of execution. The phenyl-hydrazine test is superior to the Fehling test in the non-fallacious character of its findings. We advocate the habitual use of the Fehling test to disclose the freedom of urine from dextrose. If, however, any urine be encountered which reacts positively with the Fehling test, said urine should then be subjected to the phenyl-hydrazine test to make certain that the positive reaction obtained by the Fehling test was caused by dextrose and not by one or more of the many substances which may be present in urine and react toward Fehling's test like dextrose.

In conclusion I desire to express my appreciation of the excellent services rendered during the conduct of the work by my assistant, Dr. C. J. Stamm.

MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA.

ALWAYS BLAME THE BOARD.

Boards of pharmacy are made up of human beings pretty much like the ordinary citizen. As individuals, they are liable to make mistakes and even in council, with the exercise of the best of care and judgment, errors are certain to occasionally occur. The interesting question, however, comes when it must be decided who shall be the judge of right and wrong acts and who shall set up the standard by which the board of pharmacy is to be measured. Our editorial experience, which dates back almost as far as the average board of pharmacy, and the experience of other pharmaceutical journals shows that pharmacists are always ready to judge of the acts of a board of pharmacy and are quick to give their decisions, particularly when, in their own minds, it calls for criticism. We have seen boards of pharmacy blamed for the scarcity of drug clerks, for the high price of salaries, for the number of drug stores for sale, for the close proximity of drug stores, for cut rate prices, for the low wages paid clerks, for the number of clerks out of employment, for the annual or bi-annual re-registration fee, for the necessity of attending a college of pharmacy, for interchanging certificates with other boards, for not adopting reciprocity in registration, for paying the secretary of the board a salary, for letting women in pharmacy through, when men making the same average would not have been passed, for having it in for women in pharmacy and denying them registration on the required percentage in examinations and for a long list of other things that need not be mentioned here. Our experience with boards of pharmacy convinces us that as individuals and in their official capacity the board members are anxious to do the very best they can for the welfare of pharmacy in the state concerned.

We are not calling attention to the criticism of boards of pharmacy with a view of having the practice discontinued. If anything, it should be encouraged. It acts as a safety valve for disgruntled pharmacists and does not harm the board. The board member who cannot stand criticism is unqualified for a position as a state officer. The board which escapes criticism must be inactive and the law under which it exists a dead letter.—*Meyer Brothers Druggist.*

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

REPORT OF THE COMMITTEE ON DRUG REFORM.

L. E. SAYRE, CHAIRMAN.

This is the second time the Committee on Drug Reform with its present personnel has had the honor of reporting to the American Pharmaceutical Association. The year has been one of activity in political lines. Notwithstanding the immense amount of drug reform legislation proposed and the corresponding efforts put forth to secure its enactment, all attempts have been more or less successfully defeated. In some cases established reforms have been swept away. For example, speaking as a Kansan, our sister State, Missouri, has deprived the Board of Pharmacy of the right to employ special attorneys in the prosecution of the Pharmacy Law. This the Board considers a serious handicap. It constitutes but one of the instances of failure to improve pharmacy laws and to bring about more substantial reform through drug legislation.

Some new laws are worthy of notice:

Tennessee passed two measures creating pharmacists out of unqualified men. In one case, physicians in towns under 2000 population are given registration privileges, and, as to apprentices and assistants in pharmacy, after five years of service, they become registered as pharmacists.

In Indiana a new enactment solves the problem of rural drug supply by prohibiting, under certain penalties, the sale of drugs within two miles of a drug store. In Ohio the anti-sampling bill prohibits the doorstep and yard sampling of alleged remedial agents. In Michigan the poison container must have stoppers with serrated edges.

The Committee on Drug Reform has during the year, just past, published an open letter to pharmacists of the United States in *The Druggists' Circular*, presenting the results of investigation, indicating possible reforms and soliciting coöperation, suggestions in regard to the work, and criticism. About two hundred and fifty reprints were also mailed to druggists and pharmacists. A number of responses were received in which interest and a spirit of helpfulness were manifest.

The Chairman of the Committee has felt that it was his prerogative to act independently in the matter, doing what he could in his own State to influence reform in drug legislation. To this end, he has written and sent broadcast over the State at different times during the winter three separate circulars setting forth especially the need of two reforms: first, that of controlling the practice of itinerant vendors, and secondly, that of preventing the objectionable practice of

dispensing physicians who do not avail themselves of the protection against adulteration. Unfortunately, the efforts which have been put forth in this direction have been apparently of little avail. The two bills which were introduced in the House of Representatives failed to carry. Yet we, in Kansas, by no means, confess defeat. We believe that when the people of the State at large clearly understand the issue they will be only too willing to support the legislation asked for.

Few reforms in the way of actual legislation have been secured anywhere. But the cause of reform has achieved progress in the precedents established by decisions of the National and State Courts. With these it would be impossible for the paper to deal in detail. Those who have followed developments through the journals know that they have come to constitute a very voluminous part of pharmaceutical literature. We are unfortunately able to refer to the far-reaching cases where an adverse decision has been secured by special interests to the effect that medicinal preparations may be labeled cures for any and every ailment although absolutely ineffective, without violating the Food and Drugs Act. The moral sentiment created by such a decision may in the end be productive of good. Already reaction has set in when Congress is asked to strengthen the Federal Act to cover such clear cases of misbranding—and Congress is asked to act promptly.

We need national, interstate, and intrastate drug reform. The necessity of better drug examination at ports of entry should be reiterated. One correspondent states in reply to circular letter: "Not all ports of drug entry are under inspection. While at those that are, their ultimate admission or rejection rests with inspectors who are not scientifically fitted to judge in the matter."

One correspondent, Dr. Schneider of California, and of this Committee, writes as follows:

"The drug situation on the Pacific Coast is not much changed. As reported to you on previous occasions, the percentage of adulteration of vegetable drugs, crude as well as powdered, runs close to 50. The Department of Agriculture seems to be unable thus far to change conditions very materially. The Pacific Coast is simply the dumping ground of the drug refuse of the United States. Of that I am convinced. The Eastern dealers simply give us the worst of the deal, dumping their comparatively worthless material here, feeling that they are less liable to get into trouble than if they should attempt to dispose of such material nearer at home."

He suggests that the difficulty might be met in part at least by

"limiting the importation of drugs into this country to three or four ports of entry, thus doing away with the expense of inspectors at a dozen or twenty different places, and by using the money thus saved to have three or four well equipped laboratories in the ports of entry selected. At all events, appointments for inspectorship should be for efficiency rather than for political consideration. Responsibility for the supervision of drug importation is now borne by different divisions of the Departments of the Treasury and Agriculture. By fixing responsibility on a single Department, the condemnation of undesirable drugs could be made more certain."

The regulation of the admission of substances used wholly for adulteration, such as ground olive pits and cocoanut shells, may, as ex-President Rusby sug-

gested, and we recommended last year indirectly, be made the means of checking drug adulteration within our own boundaries.

The question of uniformity of standards is worth our noting again. We do not favor the permission of the use of pharmacopœial titles when variation from standard is stated on the labels. The Federal regulation on this matter is entirely too loose, loopy and far-reaching. It will work an immense harm to pharmacy if it be allowed full sway.

We feel that most of the officials who have to do with the administration of the Federal law recognize that in this respect it is not good. Dr. Wiley has so expressed himself. We should like to see the Federal law brought into harmony with the idea of greater uniformity of official preparations, no deviations from them being permitted except, perhaps, in a very few especial cases.

Moreover, since we feel that this should be the goal of Federal legislation, State legislation should be looking forward toward the same end. If that end be reached the sooner in the State, it constitutes that much progress. There is nothing gained in modeling State upon National law, in the empty desire for uniformity when the National law itself is not a good one. Let the States prohibit sub-standard goods as completely as possible.

The lack of uniformity in guaranty provisions in the different States leaves the way open for wholesale abuse. In many States there is no arrangement for fixing the responsibility for the sale of adulterated or misbranded goods when the vendor can show the guaranty of a shipper living outside of the State. The section relating to guaranty provisions in the Michigan law might well be enacted verbatim by the other States of the Union:

"Provided, That no dealer shall be prosecuted under the provisions of this act when he can establish a guaranty in accordance with the provisions of the national food and drugs act, June 30, 1906, or a guaranty signed by the wholesaler, jobber, manufacturer or other parties residing in this state, from whom he purchased such article, to the effect that the same is not adulterated nor misbranded within the meaning of this act. Said guaranty to afford protection shall contain the name and address of the party or parties making the sale of such article to such dealer, and in such case, if guaranty was given in this state, said party or parties shall be amenable to the prosecutions, fines and other penalties which would attach in due course to the dealer under the provisions of this act."

This would relieve the State of Kansas, for example, of some present embarrassments.

A third reform needed in State legislation has to do with the labeling of physicians' prescriptions. This is required in a number of States. It is obviously an injustice to the physician to make known to his patient what has been prescribed. Cure may by this means be retarded, or a drug habit formed. The clause should be repealed in every State Food and Drugs Law in which it now stands.

A concerted effort on the part of pharmacists should be made to inhibit the exploitation of the drug business in the form of Nostrums—a barnacle still impeding pharmaceutical progress, and lowering its dignity. The organization of a company advertising its stock as a sure money getter and a grand opportunity for financial investment in nostrum manufacture is suggestive on the face of it of

a questionable interest in the quality of the drugs (and of their wonderful merits) for the handling of which the company is organized. The Committee suggests that these companies might be restrained by an amendment of the state pharmacy laws—the same laws which compel physicians and pharmacists to prove their qualification or by some kind of restriction as a matter of public safety against fraudulent claims of the nostrum makers and vendors, even though it require certain kind of restriction in the use of the U. S. mail.

In a large number of the States, particularly in the West, reform should be directed at the practices of dispensing physicians above referred to. Physicians are seldom competent to judge of the quality or purity of the drugs they handle; hence, if they dispense, they become easy marks for supply houses wishing to unload substandard and adulterated materials. The fact that a physician's stock of drugs is not subject to legal inspection serves to make him the more liable to imposition. Legislation should be secured in the various States obliging physicians who wish to dispense drugs to meet the present legal pharmaceutical requirements. We are glad to state that a large number of the best and most progressive physicians are with us in this matter.

An effort should be made to control itinerant vendors more effectively. These house to house and door to door pedlars often carry a considerable supply of drugs in connection with toilet articles, notions, and proprietary medicines. Yet their stock is seldom subject to inspection largely because of inadequacy in the administration of the law. This state of affairs very naturally results in two standards—a strict one for the pharmacist who must dispense of a uniform quality, and a much more elastic one for the itinerant vendor who dispenses as he pleases. In order to control this traffic those who engage in it should be required to put themselves on the same plane as the registered pharmacist, and their wares should be submitted to inspection, such inspection being made as practical as that of drug stores.

One of the biggest propositions drug reformers are facing is that of getting rid of old stock on the shelves of drug stores all over the country. A lot of this material finds its way into prescriptions and other trade channels. The State Associations could perform no better service to their members and to the public than to institute private investigations and when such professional derelictions are found to warn the negligent and guilty druggist of their discoveries.

There is great need of reform in inspection of intrastate commerce in drugs. The lack of coördination between Federal and State authorities, and between the various State authorities constitutes the weakest point in drug reform administration. Variations in legislative requirements tend to make the matter worse. We have already noted the loopholes offered by some of the guaranty clauses. Yet even with our present lack of uniformity of drug laws conditions could be much improved by coöperation between State and Federal laboratories and inspection.

This Committee wishes to reiterate its belief that the Association can further the work of law enforcement by the creation of a separate division of the scientific section to consist of all who are especially interested in analyses of drugs in connection with the administration of the different drug laws. It would meet

on a special day each year to determine and unify certain processes and standards and compare results. In short, it would constitute a clearing house for drug analysts. It seems to this Committee that our own Association is a more natural center for such work than the American Chemical Society in which there is at present a special section for drug analysts.

L. E. SAYRE, *Chairman*;
ALBERT SCHNEIDER,
E. V. HOWELL.

RESPONSIBILITIES OF THE PHARMACEUTICAL CANDIDATE.

PHILIP ASHER, PH. G.

The question of the hour is, who shall have jurisdiction over the coming pharmacist? The pharmaceutical press is teeming with editorials upon the subject; educators and others are expressing their views, hence the writer believes no unpardonable sin will be committed if at this time he add his mite. Some of the opinions expressed are diametrically opposite, and it is the writer's opinion that the desideratum might be reached by striking an average of all.

The theme has both radical and conservative partisans, the former contending that authority should be entirely vested in the Colleges of Pharmacy, while the latter hold that the Boards of Pharmacy alone should wield the supreme power. The radicals naturally are confined principally to those interested in the schools either as teachers or graduates, while the majority of the conservatives belong to the class who either did not have the opportunity of a college education or failed to take advantage of it when it was offered.

It is the intention of the writer to state facts and illustrate them with examples and if in doing so the personal pronoun be used too often the reasons are obvious.

All who have had experience with State Board applicants, too well recall how numerous were the times certain ones would try the examination, always meeting with the same fate-failure, until at last the required mark was made and they stood upon an equality in the eyes of the law with you, while you sat in amazement and wondered until constant repetition of the example no longer caused surprise.

In your own hearts do you consider such men competent to practice a calling where so much is at stake and would you entrust them with the compounding of remedies for your own dear ones?

Legislators claim that laws are not made for the benefit of any class but for the people, and how remiss are they when any measure for the relief of the above conditions come before them.

Would conditions be improved were a college course exacted? That depends upon circumstances. The graduate with only his college training is not much better than he who has failed so often; but this when conjoined with the necessary amount of experience makes the ideal condition.

The writer recalls the case of a medal student, who after graduation was employed in a manufacturing laboratory and while his theoretical knowledge at

the beginning of such a career was up to the top notch, he was wholly at sea with his surroundings and lacked that essential that a college training cannot supply, and which is acquired only by hard knocks—practicability. A year after graduation he went before the State Board and though he passed successfully, his answers disclosed anything but a college trained mind. The seeming brightness at college was actuated by a possible reward, but had he had experience before entering college the knowledge acquired would have been more deeply rooted and would not have been forgotten so readily. The above conditions represent the extremes; what would the happy medium be?

The candidate for registration should possess two necessary requirements, a practical experience of two years and a college course.

Each Board of Pharmacy should have complete supervision of the apprentice from the time he makes application for such papers until he is registered, thus making the board the court of first and last resort.

When the apprentice first enters upon his career he should be fully informed as to all conditions that will be imposed upon him. At the end of two years he may enter a school of pharmacy, but his fitness to do so should be determined by the board not through certificates or diplomas, but by an examination, and no permission to enter a school should be given until the board is fully satisfied. (The limitations of such fitness will be discussed later.) This is the first obstacle he encounters, and after several trials, if found wanting at this stage, would it not be better to discourage him from continuing, rather than meet with failure higher up the line? The time he has already lost amounts to nothing and you would be doing both him and humanity an act of kindness by such procedure, and would rid the calling of the undesirable element with which it is so badly burdened. To advance into a higher class an examination should be passed and another before graduation, and the final gateway is his examination before the board to entitle him to the Registered Pharmacist's Certificate. Thus it is seen that constant study is necessary to reach the goal and if deficient at any step may result in a final failure.

Are the conditions as outlined impossible of realization? What method must be pursued to bring them into effect? Neither the radical nor conservative method alone will be of any avail; the middle of the road policy must be adopted and every phase of this momentous question must be fully considered.

The educational prerequisite is perhaps the feature over which there is a greater difference than any other. Here again the educator is wont to go to extreme measures and attempt to enforce a condition so high as to make it nigh prohibitive. Certificates and diplomas cannot always be depended upon as a measure of qualification, the lack of which should not be an absolute bar to one's entering a college—and common sense should sit in the judgment seat. We once had a student who had graduated from a Southern college near the Ohio, possessing a B. S. degree, who had never heard of the term bacteria and while apparently versed in Latin and Greek, was unable to perform problems under Ratio and Proportion. Another illustration bearing upon the same point was a case of a young man applying for a position in a manufacturing laboratory, and upon interrogation stated he had finished mathematics and had passed an examination at a preparatory school to enter the University. It was not very long after that his

knowledge of such subjects was shown to be very meagre and he was unable to perform examples under simple fractions. It was true he had studied as he had claimed, but it was a case of cram and not with an intent of reason. He was taken in hand and given a thorough drill, pursued a course in Pharmacy, standing highest in his class, and after further tutoring to make the counts required by the University, entered it as a medical student and has since become a successful physician.

Allusion was made above to the fact that we cannot be guided only by a certificate. Many a worthy lad would be turned down if we adhered strictly to such ruling. A few years ago I was called upon by a young man desirous of studying Pharmacy, who stated he feared the examinations as he had been placed upon his own resources at the age of ten, and until entering the drug business several years before had led practically a nomadic existence.

I became very much interested and after learning all I could decided to shoulder the responsibility of admitting him without an examination. My judgment was not wrong, for he soon proved that the knocks he had received had made him self-reliant, and he not only mastered the studies, but he possessed that keenness of forethought that he saw and understood things before they were fully explained, and as may be imagined his standing was far above the average.

Two years ago several belonging to the class of "repeaters" passed the Louisiana Board of Pharmacy. One of these came to the private school of the writer (before the existence of the N. O. C. P.) after having already failed several times to pass the Board. He paid his fee in advance and took one or at most two lessons. It subsequently developed that the nights that his employer permitted him to attend he spent in other ways than "burning the midnight oil," and twelve years after he finally succeeded in squeezing through.

Objection has been raised to a prerequisite college course on the ground that it would deprive the poor boy of an opportunity of attending college. "This poor boy proposition has done service so long that it has "died from over fatigue." The legislative committee of the Louisiana State Pharmaceutical Association, when they appeared before the Committee on Health and Quarantine who had this measure before them, presented some eighty or more affidavits showing the possibility of young men attending college while employed. The committee made a favorable report and the bill passed both houses only to receive a pocket veto for political reasons and not upon merit.

I can recall many cases of the basest ingratitude shown by some poor boys towards their employers, some beyond belief. Charity is a trait worthy of emulation, but it is too often misplaced. I do most emphatically claim without fear of contradiction that any young man can attend a college if he is possessed of a determination to succeed. The principal reason more do not attend is that they have been advised by those not having had a college education that such is unnecessary, and naturally without the incentive the effort is never made. A "repeater" upon being approached to take a course in the private school of the writer stated he did not need any instruction and could pass without it. Eight years later, after all manner of excuses why I could not coach him were offered and failed, I finally yielded and during this period only a few lessons were given for which he paid nearly as much as two sessions of college would have cost

today and more than what was charged during my time. As may be imagined, such desultory methods proved valueless and he failed at the next examination but succeeded at a later one. Do not these examples forcibly illustrate the fallacy of expense? Do not some of these young men pay more before they finally pass than a course at college? Some may ask, "How can this be?" Consider one side of this subject alone. What has been the monetary loss of the repeater compared to the young man who has gone to college? Calculate the difference in the pay between the registered pharmacist and the unregistered, and it will only take a short time to pay for the college course as against the many years it takes the repeater to pass.

Is not the more sound education worthy of consideration? Can any one cite a single instance where an education as suggested has any drawbacks? Then as men following a calling quasi-professional in nature we should demand such restrictions. An editorial in one of the recent pharmaceutical journals quoting a college professor is beyond reason. The professor opposes prerequisite education on pure sentiment, stating that if a student failed to pass his college examinations it would deter him from becoming a registered pharmacist and that was a responsibility he did not care to assume. Especially when the failed ones would appeal to him for sympathy. This is a fine state of affairs if men of education take this view. Sentiment in matters as vital as this is as bad as politics. Did it ever occur to this teacher that a student's failure to pass is largely his own fault, not on account of stupidity but lack of study? The failures at college would be indeed few if the student knew that it was compulsory to have a diploma in order to pass the board; and if the avenue to which the professor referred were still open to the student who failed, there would be but few applicants.

In this paper generalities have been avoided almost entirely. No attempt has been made to paint impossible conditions; the illustrations are facts not romances, nor have exceptional cases been cited and while only one or two instances were brought forward under each of the several cases, examples could be given almost without number. An experience of nearly thirty years in the various paths of pharmacy must certainly carry with it some weight in an opinion upon this subject, and the stand taken by the writer and the views expressed are the result of a thorough study of every phase mentioned.

THE STAB IN THE DARK.

"A man may lead a life of honesty and purity, battling bravely for all he holds dearest, so firm and sure of the rightness of his life that he never thinks for an instant of the diabolic ingenuity that makes evil and evil report where naught but good really exists. A few words lightly spoken by the tongue of slander, a significant expression of the eyes, a cruel shrug of the shoulders, with a pursing of the lips—and then, friendly hands grow cold, the accustomed smile is displaced by a sneer, and one stands alone and aloof with a dazed feeling of wonder at the vague, intangible something that has caused it all."—*William George Jordan.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

NOTES ON SOME PHARMACEUTICAL PREPARATIONS.

P. HENRY UTECH, PH. G.

For many years past we have kept a record of hints and suggestions for the improvement, or expediency in manipulation of, the various pharmaceutical processes or operations, which have come under our observation, and I take pleasure in presenting to you at this time some of the data which, in our experience, have proven to give excellent results.

It is not claimed that these devices are all original, but were simply obtained from authentic sources, tested, tried, and not found wanting. I will first call your attention to a few points—simple but very essential—in the making of U. S. P. syrups. We formerly had considerable trouble in making satisfactory syrups, both simple and medicated, until we began using the brand of sugar known as "Crystal A" Confectioner's Sugar. This particular brand seems to be entirely free from the bluish coloring principle. The water, too, must be distilled, not sterilized, if you expect to make a perfect product.

We also experienced some difficulty in maintaining a satisfactory syrup of Wild Cherry. Inasmuch as the influence of light exercises a very detrimental influence on the keeping quality and remedial value of this syrup, we have found it quite advantageous to keep the stock syrup in an amber-colored glass container. Some authorities claim that the aromatic principle is entirely dissipated in a few months upon exposure to direct light. Incidentally I might mention that such clinical authorities as Wood, Sollman, Wilcox and others are convinced that this preparation is used chiefly for a flavor and contains little, if any, therapeutic property.

The Compound Syrup Hypophosphites formerly gave us some difficulty in making a permanently clear product owing to the presence of a basic calcium salt. The addition of a small quantity of Hypophosphorous Acid seemed to remedy the trouble.

An Elixir Terpin Hydrate containing double the amount of the Terpin Hydrate can be prepared by the addition of a small quantity of Acetic Acid. The formula we now use is as follows:

Terpin Hydrate (in powder).....	256 Gr.
Acetic Acid	80 Min.
Tinct. Sweet Orange Peel.....	2 Fl. Dr.
Alcohol	8 Fl. Oz.
Glycerin	4 Fl. Oz.
Elixir Aromatic, sufficient to make.....	16 Fl. Oz.

Dissolve the Terpin Hydrate by the aid of a gentle heat in the alcohol, to which the Acetic Acid has previously been added. Then add the tincture sweet orange peel, glycerin, and lastly, elixir sufficient to make 16 fluid ounces.

Most formulas suggested by other experimenters seem to be heavily charged with glycerin in place of the alcohol, in many instances, making the preparation eligible to the class of Glycerites. Many also suggest the use of Saccharin as a sweetening agent, which has recently been tabooed by the Pure Food and Drug authorities.

We also make Elixir Aromatic by using only one-half the quantity of syrup and water called for, in the first part of the operation, mixing with the spirit of orange, and alcohol, and filtering until a clear solution is obtained. By this operation there is an economy of several hours' time.

When dispensing the U. S. P. Infusion Digitalis, the physician expects to get a preparation which represents the entire diuretic property of the drug. For this reason we have always employed the well known English brand of the drug. Although costing more than double the price of the American grown drug there is no comparison in the quality of the finished preparation.

This idea of economy is of altogether too frequent occurrence among our pharmacists. Many of the newer U. S. P. and N. F. formulas have incorporated in their text numerous volatile or aromatic substances—in some instances as adjuvant—in others because of some therapeutic value. It is possible that in many instances their object is entirely defeated through the dispensing of an inferior product. Take the case of the Liquor Antisepticus, Tinct. Lavend. Comp., etc., as examples, the medical properties of which depend entirely upon the volatile oils. Many of our more progressive wholesale drug firms now attach a label showing the physical constants of each oil, thereby ensuring uniformity and accuracy in the finished preparations in which they are employed.

We prepare many of the aromatic medicated waters, by simple agitation of the oil with hot water, allowing same to stand for several days or weeks as the case may be. The product is then poured upon a wet filter, which retains the excess of oil, and the preparation is then ready for use.

For more than ten years we have used the circulatory displacement method in preparing Tincture Iodine with most happy results. The U. S. P. 1890 formula calls for Potassium Iodide in addition, which is not immediately dissolved. We use about 90 per cent. of the alcohol at first, place the mixed chemicals in a muslin bag, suspend for one-half hour in the liquid. After that we take any excess of potassium salt out of the bag, add to the tincture thus prepared, and finally wash the bag with the remainder of the alcohol.

In making up emulsions of fixed oils, such as Castor, Almond, Cotton Seed, etc., the addition of powdered Castile Soap—about 1 gramme to each 30 cc. of oil—makes a most excellent emulsifying agent. In the case of Castor Oil emulsion, the soap likewise increases the aperient action of the oil. The soap may also be used in preparing emulsions of Balsam Copaiba by increasing the amount with very satisfactory results. Emulsions of this character, however, are not as permanent as those made with Gum Arabic.

THE JOURNAL OF THE
INFUSION OF DIGITALIS U. S. P.

CHAS. M. FORD, PH. G.

The following report is taken from the files of the Food and Drug Department of the State of Colorado, and was submitted by this writer in his official capacity as State Drug Inspector:

"The question of how the physiologic test upon a package of digitalis shall be regarded by the retail druggist has been brought to the attention of this office.

"Inasmuch as there is no official, chemical or physiologic standard for the drug, a strict construction of the law of this State requires that all official preparations be made according to the proportions laid down in the United States Pharmacopœia.

"In all probability, the next revision of the Pharmacopœia will contain physiologic tests for such potent drugs as cannot be valued chemically. It would therefore seem fair for the conscientious pharmacist to anticipate the action of the Committee on Revision and dispense such important a remedy as infusion Digitalis with a careful regard for toxicity and therapeutic powers as shown by trustworthy physiologic assays.

"A visit to a number of Denver stores shows that a principal source of supply for digitalis leaf is one British firm, who now place upon each container the strength of the drug, as compared with an arbitrary standard of their own. The reputation of the firm throughout the world merits for their standard and similar declarations the careful consideration of pharmacists and physicians."

Every pharmacist recognizes the necessity for standardization and rubrics of purity, especially for plant drugs. It is a well known fact that we have no chemical or physiological test for determining the toxic or therapeutic potency of some of our most important plant drugs, including digitalis and the U. S. P., is silent as to physiological tests.

The main object of a legalized authority, such as the U. S. P. and N. F. is to secure uniformity in the strength and character of official substances and preparations. Now in the case of digitalis, known to have a wide range of variation, in medicinal value, how is this uniformity to be secured? Obviously, not by adhering to the fixed proportion given for preparing infusion digitalis. Or will someone contend that the physician must observe this varying strength of an official preparation, at the bedside and regulate the dose accordingly?

Technically speaking, any deviation from official formulas is violation of law in the State of Colorado, but in the case of infusion digitalis, in the writer's opinion, a rigid compliance with the letter of the law is a flagrant violation of its spirit and purpose, and should not be countenanced in any well regulated pharmacy.

INFUSION OF DIGITALIS.

J. LEON LASCOFF.

For many years past pharmaceutical journals have given much room to the discussion of the subject of digitalis. Still, little or nothing has been mentioned about the infusion of this most important drug. Of all the infusions, that have

been prescribed and have not lost their use in therapeutics, digitalis is one of the most important, and yet it is the one, in spite of its great importance, to be abused the most.

Let us consider what the physician intends when prescribing this infusion. His object is to give the patient a preparation of digitalis that shall not contain all of the principles found in the powder, the tincture, and the fluidextract. He wants only those soluble in water. In order to bring this about, it is the duty of the pharmacist to manufacture an infusion and bear certain important facts in mind in doing so.

1. The quality of digitalis.

2. Method of preparation, utensils and time necessary.

(1) In selecting the leaves always purchase the one which costs the most, which bears the guarantee label and date of selection. Whether the leaves should be the first or second year's crop, wild growth or cultivated, are not to be considered in this paper, as the question is not yet definitely decided upon by authorities; but I have found through personal experience that the leaves purchased from Allen & Co. bearing the certificate label of purity and date, are the best for the manufacture of infusions; and I have come to this conclusion as the result of experiment by purchasing four different qualities of leaves at prices ranging from 50 to 85 cents per pound.

It may seem to be unethical to mention the aforesaid name of firm; still I am of opinion that such should not bear criticism in this case, as we are dealing with a drug, the action of which may influence the life of an individual, and as the firm actually guarantees its purity and selection and date, and as no other concern does so, I don't hesitate to recommend Fol. Digitalis Allen. If I am authentically informed that this is not the case I will gladly strike out the name.

(2) Just as important as is the quality of the leaves, so is the method of manufacture. One must always follow out the instructions of the U. S. P. and so pay strict attention to the utensils used and to the time occupied in making the infusion. Only porcelain or glass dishes should be employed; no metal or enameled dishes should be used for obvious reasons. After the preparation has been allowed to remain standing for one hour, well covered, the remaining leaves should be placed in cheesecloth and squeezed through in order to get out all possible strength, and then the entire liquid properly filtered. Although the U. S. P. requires the addition of alcohol, I think it could be just as well omitted if only for the reason that the pharmacist would not be tempted to make up a stock solution. Physicians frequently prescribe also Infusion digitalis, different strength, mentioning the quality of the leaves, and in such case alcohol should not be used.

I want at present to take the opportunity to criticise the contemptible habit of some pharmacists who make the infusion from fluidextract. It is true, that every drop of the extract represents one grain of the drug, but the fluidextract is made with alcohol and represents all the constituents of the original drug, just exactly what the physician does not want in his infusion. The therapeutic effects are entirely different than that intended by the prescriber. You are therefore doing

an injustice to the physician, patient and yourself. *Whatever is worth doing is worth doing well.*

And this most certainly applies in this case in which human safety is at stake. As an illustration of my remarks regarding the various qualities, grade and price of digitalis leaves on the market, I had examined by a physiological chemist, four specimens of the different grades and prices, with the result as follows:

	M. L. D.	Strength	Cost
(1)	12.3 Cc.	54%	.55 per pound
(2)	10.0 Cc.	67%	.65 per pound
(3)	10.0 Cc.	67%	.70 per pound
(4)	8.3 Cc.	80%	.85 per pound

which means that in Specimen 1, the poorest grade, it required 12.3 cc. of the infusion to kill a normal weight Guinea pig, and that the total percentage of drug strength compared to the tincture was 54 per cent.

Four, the best grade, required only 8.3 cc. of the infusion to kill the same size pig with the total per cent. of 80.

We see then that No. 1 is the weakest and cost the least, and No. 4 the strongest and cost the most, and yet the cost for 250 cc. is so trivial that it must be computed by fractions of 1 per cent. For example:

	<u>lb</u>	<u>30.0</u>	<u>7.5</u>	} To make 250.0 Cc.
(1)	55c	0.034	0.0085	
	<u>lb</u>	<u>30.0</u>	<u>7.5</u>	
(2)	85c	0.053	0.0133	

The difference of price of 250 cc. bottle of infusion is just 0.0048, or approximately one-half cent. If the saving is sufficient to cause the pharmacist to employ the inferior grade in preference to the more costly one, then it is time for him to close his establishment.

DISCUSSION.

MR. VANDERKLEED called attention to the fact that in making the infusion it was not possible to avoid getting some of the heart stimulating principles in it, but that these would not be present to the same extent in an aqueous infusion as in an alcoholic tincture, consequently it was possible for the physician to vary the effect by specifying the infusion in one case and the tincture in another.

MR. HOWELL did not accept the statement that infusion of digitalis has only a diuretic effect. In the making of a number of experiments on dogs and frogs it was necessary to deduct the effect of the alcohol in order to compare the infusion with the tincture.

Infusion of digitalis is decidedly more strong in its heart action than it is thought to be by some people.

MR. WILBERT hoped that the dangerous and misleading impression would not be created that the quality of digitalis depended entirely upon the price paid for the drug. The question of price has little or nothing to do with quality. The question of digitalis is an extremely complicated one and not to be solved offhand.

He stated that the Bulletins on Digitalis issued by the Hygienic Laboratory would justify different conclusions than those presented in the papers read. He hoped Mr. Lascoff would

eliminate therapeutic reference in his paper lest it be construed by medical men as an assumption on the part of pharmacists to say something about which they know little or nothing.

MR. GROFF stated that the earlier physicians who used digitalis employed only the leaves after they had been deprived of midribs and large veins. He thought it possible that such a drug would be more uniform in action than the whole leaves.

With regard to the use of therapeutic references, he thought that these should be given in colleges of pharmacy in the lectures on physiology, and that the lecturer should be a physician.

MR. RAUBENHEIMER said that the present U. S. P. does not state that the infusion must be freshly prepared, as it undoubtedly should. Many pharmacists seem to think that the addition of alcohol in the present formula gives them the right to keep the infusion on hands and dispense as wanted. The Pharmacopœia should definitely state that the infusion must be freshly prepared. He did not agree with Professor Lascoff as to the squeezing of digitalis leaves and filtering the infusion. Adding water through the leaves takes out practically all of the soluble principles.

MR. DUNNING preferred to make the infusion by pouring boiling water through the leaves, and after standing an hour pour through a funnel containing cotton, following with sufficient water through the leaves and cotton to make the required quantity, after the alcohol has been added.

In response to a question by Mr. Alpers as to the reason for the alcohol in the present formula, Mr. Hynson thought that it was to aid in keeping the infusion until used by the patient.

MR. WILBERT said it was the remnant of the practice in which brandy was added to make the preparation more palatable, and that this had been misconstrued into a preservative.

MR. LASCOFF stated with reference to the diuretic action of the drug that he had communicated with at least twenty physicians, and that they had endorsed the statement made.

MR. ALPERS stated that if it was true that the object in prescribing the infusion was to reduce the heart action as much as possible then the alcohol was acting as an antidote to the drug. If the statements made to the Section were based on fact, the attention of the Revision Committee should be called to the subject before the formula is placed in the next Pharmacopœia.

PROF. J. P. REMINGTON said that we do not know certainly to what digitalis owes its peculiar virtues and until we have a good method of assaying and determining the value of the drug there would be discordant results. If the pharmacist is sure he has obtained a good quality of digitalis does not give it a chance to deteriorate, and makes the infusion freshly and in small quantities, he has done the best he can do under the circumstances.

The conditions which contribute to the deterioration of digitalis are not known exactly. He did not have faith in the putting of digitalis in blue bottles, but preferred a non-transparent container, as a tin can, with a lid not too tight. Frequently leaves are injured by keeping in a tight container which does not permit the evaporation of natural moisture. Until it is known with certainty what the active principles of digitalis are, and their nature, the pharmacist cannot intelligently make its preparations. The best that can be done under the circumstances is to make a preparation which shall contain all of the active principles. He thought that physicians did not generally make any differentiation between the use of digitalis for heart action and for diuretic action. He believed that there are too many alcoholic preparations used and that the use of a greater number of infusions made directly from the drug would be an improvement over the present practice.

Referring to the idea that the value of a drug necessarily indicated its quality, he said that this was not necessarily true. Prof. Kraemer had found that the dark and wormy portion of rhubarb, commonly required to be rejected, is in some cases the most valuable.

Another important question in pharmacopœial work was, how much of the stems of vegetable drugs should be included? The collector of drugs sought to include as much as possible of adherent and extraneous matter, and the importer naturally sought to pass this material on to his customers. In the next revision of the Pharmacopœia it would be endeavored to limit

as much as possible inert portions. In reply to a question as to the reason why the Revision Committee included alcohol in the infusion, he stated that it was for its preservative properties.

MR. HYNSON moved that the papers be referred to the Publication Committee with the understanding that the authors should eliminate all therapeutic references, which motion was seconded by Mr. Wilbert.

MR. FORD referred to the large use of digitalis in Colorado on account of the high latitude and pulmonary troubles. A drug could not be discussed even commercially without therapeutic references. It was desired to give the physician what he expected to get and as digitalis was a drug whose constituents were not well understood, it should be endeavored to give a uniform infusion from the best drug obtainable. He had never been guilty of putting alcohol in the infusion, and had always considered it one of the jokes of the Pharmacopœia.

DR. J. M. GOOD did not see exactly how the authors could be required to eliminate all therapeutic references. He thought the preparation of a drug so as to develop one or another particular therapeutic quality was a very important part of its pharmacy and was properly included in the discussion of such drugs and their preparations.

MR. HOWELL stated that he was prepared to defend his use of therapeutic terms if challenged. The experimental work referred to had been performed in his department and results had been published and read before the American Medical Association.

MR. VANDERKLEED did not think it necessary to eliminate all therapeutic terms, but if Mr. Lascoff would eliminate the statement that physicians wanted to leave out all heart stimulating properties it would be sufficient. Physicians certainly do prescribe the infusion for its diuretic action.

The amendment was accepted and the amended motion was unanimously carried.

MR. HYNSON moved that it be the sense of the Section that pharmacists should be warned against the use of any except infusion of digitalis freshly made, in strict accordance with the Pharmacopœia.

After some discussion, the motion was put to a vote and carried.

ANOTHER VIEW OF PARCELS-POST.

About the only associations now opposed to a parcels-post are those of druggists, while a great many organizations, including the Manufacturing Perfumers' Association, are urging the adoption of the idea. Residents of England, Germany and other foreign countries now have the *privilege of using our mails in this way*, by international agreement, and the equal right to enjoy this service should no longer be denied to the American citizens and taxpayers who "pay the freight" in the form of taxes. All of the arguments against a parcels-post have been exploded by the experience of countries where the system is in operation. President Taft, ex-President Roosevelt, the Postmaster General and leading publicists, as well as prominent business men, all are advocates of the idea, and the only difficulty in Congress seems to be rather one of ways and means than of disapproval of the plan as an economic and desirable feature of our postal service.

With a parcels-post there is no danger of the small dealers being crushed under the "steam roller," unless they are business derelicts waiting for some excuse to get out of trade. It has not happened in other countries and it will not happen here. In fact, the small dealers in the small towns will enjoy more advantages than at present under a parcels-post system.—*The American Perfumer*.

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

THE PROPRIETOR'S SALARY.

W. BRUCE PHILIP.

The young man starting in business as well as many older men who have been long established would not know how to answer if asked, "What is your salary?"

"All that is left over," "all that I spend out of the cash drawer," or "all that I need to live on," might be some of many answers. If business is good, the boss helps himself liberally with money from the sales, and, if trade is dull, stints himself or reduces stock as long as it will stand it.

Profit is made by selling goods for enough to pay all expenses and have something left over.

In order to be successful one must know all expenses exactly, not approximately. In large corporations each man engaged is paid a salary and this is figured in as part of the fixed expenses, but the one man store or the one employing one, two or even several clerks, is very apt to be very lax at placing his services at a stated value.

The young man starting says he can live for a short time on a small salary, say \$60 per month, and figures accordingly. He starts and sales are made, bills are not yet due and he uses what he needs, maybe ten, twenty or thirty dollars more than first figured and next month the same until he finds himself alternately living well and then cramping himself to get along.

The drug business is composed of so many thousands of items that the ratio of the amount bought to the amount sold in any month or few months is often deceiving as to the profit or condition of affairs. The nearer fixed the sum total of expense is the easier the manager and buyer will find it to run his store and regulate his buying. One of the largest items of expense is salary and this in all cases should include his own services at a specified amount. A man must forget he owns the store and imagine he is the manager at a stated salary, such salary to be increased only by his own efforts and worth.

Except in the beginning or in rare cases, the manager (owner), is entitled to as much or more, as salary, than the best clerk working in a store similarly situated. Enough to give himself and family good food, respectable clothes and reasonable recreation. If one can not pay that, the honor of the name over the door is an empty one and the sooner it is changed the better. Let him pay himself a specified sum at stated intervals, increasing it only as he puts more energy, more shrewdness or worth into his work. Then run his store to pay a dividend on his investment and accept what is left over as such.

If one pays himself a salary that is more than enough to live on and it is not

too large considering clerks' salary in the neighborhood, what he saves out of his salary is a personal saving but not drug store profit. After drawing his salary regularly for some time he finds he has all bills paid, has not reduced his stock and still finds a surplus, then he has what I call real profit.

One of the important things is to always know where you stand. To know things as they really are. And the more definite all steps are taken the easier mistakes are found out and rectified—before they become of such magnitude as not to be controlled.

The drug store has many sides and offers many questions. Many items are peculiar to certain stores, but expense of running business is connected with all, and the boss's salary is of vital interest to each one of us. "How much am I really worth?" "Am I getting it?" "What per cent. is my real profit?" are questions not to be passed over lightly but to be answered carefully and honestly.

SOME ADVANTAGES OF MAINTAINING A LUNCH ROOM FOR EMPLOYEES OF PHARMACEUTICAL MANUFACTURING ESTABLISHMENTS.

W. A. PEARSON.

Your chairman has requested me to state some of the advantages of maintaining a lunch room for employees of pharmaceutical manufacturing establishments. I doubt if I am well qualified to discuss this subject, as I have only had a limited and somewhat distant relation with one.

This lunch room was started by the Smith, Kline and French Company for the benefit of their employees, and in its present condition is a development from the rather crude beginning of eleven years ago. It was intended primarily to provide a place where their employees could obtain a warm substantial lunch and a suitable place in which to eat, in an undesirable neighborhood. Unfortunately, laboratories must be located where good railroad service is available and this condition is not often found in the best neighborhoods.

An expert chef was engaged and began serving lunches to about sixty employees six days each week. Beef stew or sandwiches, of different kinds, with bread and butter, with a choice of either coffee, tea or milk was provided. Those employees who patronized the lunch room were charged fifty cents each week.

Those who preferred to bring their own lunch were required to eat it in the lunch room but at separate tables, consequently a few of the men obtained the popular buffet lunch in nearby saloons. This practice was demoralizing as well as leaving the "consumer" in a condition not conducive to exerting his maximum efficiency. Later it was made compulsory for all laboratory employees to take lunch in the lunch room and the most satisfactory results have followed. On Saturday sandwiches with choice of either coffee or tea were served at 12:30, but so few patronized the Saturday lunch that it was decided to carry sandwiches around the building at about 10:00 a. m., dispensing them to those who desired them at that time. This was afterward changed, and the money which had been

used for six lunches was used to provide for five and these then were made slightly better.

The food is always well cooked, clean, and wholesome and of sufficient quantity to satisfy those who do the hardest manual labor, although it is necessarily plain and not served with Parisian nicety and with exquisite musical selections.

Each table is numbered and bears a menu of the main dish for the following day. Each one seated at the table states his preference for the next day. The next day the waiters give to that table just what has been ordered for it. The orders are placed on the end of the table a minute or two before the employees enter the lunch room and thus they save time and waiter service. By thus voting the previous day the chef is enabled to buy supplies to better advantage; having the list to guide him he does not buy excessive amounts of one thing and too little of another. In this way we have been enabled to practice economy and yet serve a quantity of dishes with a surprisingly small waste. A choice of three kinds of meat or nutritious soups is offered and an abundance of potatoes, bread and butter provided together with a cup of coffee, tea or milk. Desserts are charged a minimum amount extra and those who desire may obtain pie, ice cream, or other dessert; usually but one kind of dessert is provided each day.

The actual monetary cost of providing this lunch is not entirely met by the amount charged the employees; that is 10 cents a meal, although an attempt is made to keep the expense as near this amount as is possible, and were it not for the ability of the chef to prevent to a very large measure the waste, the expense to the corporation would be much greater, or the quality of the food would be poor. However, if the gas, heat, rent, flour and sugar were taken into account there would be a small deficit. Moreover, the porters about the laboratory serve the dinners and do not pay for their own. The chef has three assistants in the kitchen to prepare the food, dish it and wash dishes.

The main lunch room, 30 x 50 feet, is painted white, contains twelve long tables and each employee is assigned a seat. The well appointed kitchen, 15 x 40 feet, contains two four-foot gas ranges, a 20-gallon steam kettle, large plate warmer, mechanical potato peeler, dish washer, vegetable steamer, coffee and tea urns. A large skylight supplies an abundance of light, and a reading, smoking and game room adjoins the kitchen where many employees profitably and pleasantly spend a few minutes after lunch before returning to their tasks.

The number of employees has now increased to nearly three times that of the early days of the lunch room, but the lunch is now served better and a greater variety given than formerly, because by the addition of the above facilities the same amount of help can do such kitchen work as required in a shorter time and spend the time thus saved on preparation of food and service.

Conducting a lunch room for employees has many obvious advantages, a few of which may be mentioned:

First. It provides wholesome food for employees so that greater efficiency may be expected and obtained.

Second. It eliminates the abuse and accompanying undesirable effects of the "free lunch counter."

Third. One-half hour is sufficient for obtaining lunch in the building.

Fourth. No time is lost by employees before or after the time for lunch caused by change of dress, adjusting hats, etc.

Fifth. Better moral influence than if allowed to go into undesirable neighborhood.

Sixth. It eliminates the necessity and inconvenience of carrying cold lunches and of going out in disagreeable weather.

I desire to express my indebtedness to W. G. McHenry, superintendent of this laboratory, for much of the data here presented.

THE PRACTICAL PHARMACIST.

L. HALE.

There exists many opinions as to what constitutes the practical pharmacist, each individual opinion to a great extent formed by the channel of thought and endeavor of the respective pharmacist.

The idea that a man can spend four or five years selling various drug store goods from soda water, cigars, shoe polish, and patent medicines and claim the right to be a pharmacist is past. There must have been a certain amount of research and study before anyone can claim such a title. For a number of years there has existed two distinct forces representing the ultra opinions as to the ultimate position the pharmacist is to occupy. Each is vigorously endeavoring to master the situation and each having a few splendid examples of success to confirm the soundness of their contentions, but not practical for the average pharmacist for in each instance these successful examples have been to a great extent creatures of environment and would be wholly impracticable for the great army of pharmacists over our country.

On the one hand we find so-called drug stores that are really department stores with the drug department one of the smallest and most insignificant features. Such stores can exist only in congested centers of population and it is exceedingly rare that they ever attain any great degree of success in what must always be the chief aim of the properly conducted pharmacy—the filling of prescriptions. As an illustration of the success of such stores in this line I will remind you of the fact that one of the largest stores of this type in the United States fills on an average only 100 prescriptions a day.

Against this is arrayed that which would immediately strip pharmacy of all commercial features and transform her into a full fledged profession. However desirable this may be we are not ready for it yet and it is impracticable at this date.

In my opinion for many years to come the most practical pharmacists will be those who correctly blend the professional and mercantile into a happy union. The pharmacist must be both a professional man and a merchant. As a profession I believe that our recognized schools teach all the age demands. I further believe that all pharmacists would be the better by having taken the course of study they prescribe and that the demand for this is constantly increasing each year. The

idea that the manufacturers make and supply everything and that all the druggist has to do is to pour from one bottle into another is an old one and grows less true with each advancing step of pharmacy.

One of the most important and practical lessons we should learn is that it is our business to fill prescriptions and not write them. At the same time we should be able to tell old time customer and friend the correct amount of iodide of potash to put into a quart of rain water to cure rheumatism. Neither should we refuse to inform our other good friend the correct amount of quinine to put into a quart of whiskey for a bad case of malaria; we should also inform him of the nature of the remedy for and the frightful results that might follow an overdose. In other words there is certain information the public expects the pharmacist to supply and it is impracticable and poor business not to do so. Much of this can be given in such a manner as to show him the wisdom of consulting a physician and at the same time increase his customer's confidence in himself. Certainly nothing is more helpful than public confidence.

As to the learning of the commercial side of pharmacy, there is a part to this that can only be obtained by actual experience and is within itself a constant study and subjected to the same changes and advancements as are the most profound and advanced professional thoughts. I regard the recent addition of a commercial section in our colleges as a step in the right direction. In fact I trust it will not be long before they have in connection with their laboratories a well equipped pharmacy in which all the every day details of the business are shown.

The public expects the pharmacist to be able to tell all about the goods he handles. A man may buy a cheap hairbrush from a department store and in doing so he simply pays the price asked and is gone. Not so with him in the drug store—he wants to know all the details connected with its making and why this one should be higher than that when they look so much alike. The druggist is expected and should know. Now what is true of this one item is true of the many. The more he knows about his goods the better he is prepared to meet the present day opportunities of the present day pharmacist. This may not do in a hundred years from now but it is the practical course for this practical day.

A NEGLECTED ASSET.

JOHN J. BRIDGEMAN, PHAR. D.

Every man, whether scientific, professional or engaged in mercantile pursuits, must command a certain amount of what is ordinarily known as "business sense" and therefore have his attention attracted by the word asset, since it means to him something which he possesses or something to be reckoned with in the striking of a balance, or the determining of what one is worth. Now there is an asset which we all possess but which I am sorry to say is sorely neglected by the members of our honored profession, or seldom credited by us, to the full value—namely, the asset of mental and physical health. I have been asked by the Chairman of this Section to treat of this asset and to point out how it actually affects the earning capacity of men. You are all familiar with the expression so often heard, "A sound body begets a sound mind," and I venture to say that there is scarcely any one present who has not repeated it and then took to cover for fear

the one to whom it was addressed might say, as is so often done in the case of our hair tonics, "Why don't you try it on yourself?" The difference in this case being, however, that the former really will work.

Given a mind then let us consider its relation to the body and vice versa. We know from our physiology that the mind to some extent at least, is affected by the functions of the body, and that the reverse is also true, therefore since these two parts of our being are so inseparable, it behooves us to see that the shortcomings of the one are immediately taken cognizance of in order that they may not affect the functions of the other.

I dare say that the most of us have experienced the sensation which takes place when we take a hike into the country; how as soon as the fresh, pure air from the fields and woods begins to fill our lungs, the world seems to take on a new aspect, our minds are brighter at once and our thoughts quicken and become clearer. This is usually ascribed to the *change*, and that is about as far as the average person carries the thought, but as a matter of fact it is really due to the quality and quantity of pure air with its supply of energizing oxygen that is filling our blood with new life. Now most people will say it was the change of scene, the forgetting of our troubles and a variety of other reasons are ascribed, but if any of you are in the habit of going into the surrounding country where you live and do so with any regularity, or are in the habit of indulging in any of the various outdoor sports or forms of exercise, I am sure you will agree with me that it is not so much a matter of the change of scene as it is the matter of fresh air and circulation, and that these other reasons are of secondary importance to the normal person.

One of the greatest neglects of our profession is its utter disregard for many of the common sense or even traditional rules of hygiene and health. We seem to think that we are immune to the conditions which beset our fellow men, and the methods which he employs to offset them. As results of this supposed immunity we find ourselves with probably more consecutive hours of daily employment than any other class of men; shorter lived, and in the case of sickness, greater mortality; less time for self-improvement and recreation; less acuteness to create individuality; less ruggedness to withstand calamities and less recuperative power; less assertive power and broadmindedness, consequently less of the spirit to stick together with the consequent increased cost of maintenance and supplies; and lastly but by no means least, the drain on our posterity.

After a great deal of thought over these conditions I have reached the conclusion that a great deal of the blame lies with those who have gone before us, since they have brought us up in methods and set examples which cannot be easily overthrown in a short time.

In placing the blame on our ancestry in the drug business, the first thought in this connection is the question of hours, and upon this question rests almost all the rest of our difficulties. It was they who started and permitted the existence of our fourteen to sixteen-hour days, and seven-day weeks, and the majority of us have scarcely ever taken the trouble to sit down and think it over sensibly, to determine if such hours really are necessary and what effectual remedy is at hand.

The majority of pharmacists never stop to consider the cost of maintaining a store sixteen hours a day and every day in the year. They do not seem to be aware that the greater bulk of the business done outside of an ordinary business

day is done at that time only because the public knows that the drug store is open until midnight and they can get what they want at 11 p. m. just as easy as they could at 11 a. m. or 5 p. m. I had the experience of being called out of bed at 2 o'clock in the morning to renew a prescription for 1/10 gr. calomel tablets which the customer had been in the habit of having filled for years. Now why didn't he have it filled in the daytime? Simply because he didn't have to think that far ahead when it was a question of drugs; but would they dare to get a grocer up for a pound of butter?

I am not so much concerned with the details of the above question, however, as I am with the results, and it is to these that I must confine myself. Little thought is given to the effect on the employees who have to work these unreasonable hours, and it really ought to be one of the first thoughts. A clerk cannot put the same thought and care into the filling of a prescription at 10 o'clock at night, after he has worked all day, that he would at 10 o'clock in the morning, nor can he take the same interest in the selling of an article or the pleasing of a customer, that he might be expected to do in daytime. You may think it makes no difference in the work how long the man has been at his post, but those who have studied this problem know it does make a difference and that a man cannot do as good work 14 or 16 hours per day as he could in 8 or 10 hours.

Think of the class of men who would be attracted to the pharmacist's calling were it not for these unreasonable hours. Then again think of what might daily be saved in any store if the employees came in refreshed and had had an opportunity to consult the excellent literature which contains ideas, methods, etc., worth money, but which "goes a-begging" for the want of time and interest to assimilate it.

Another result of the night work is the almost utter impossibility to get any sort of a congregation of pharmacists together for the purpose of scientific discussion, or to hear a lecturer, no matter how important the subject may be or what benefits the pharmacist might derive from it. I have attended meetings of this kind where dollars and cents were actually given away, but no one was there to accept them. This question alone is well worth a very strong paper and not until concerted effort is brought to bear will its evils be overcome.

Let it be understood that I realize the impracticability of having the drug store open only eight hours per day, but just how long it shall be kept open is only a matter of detail. Now if the government is convinced that eight-hour days are necessary to maintain the proper discipline and health of its employees, is it any wonder that a pharmacist is a short-lived man, when in many instances he works double that number of hours per day, and many, in fact the majority, are actually busy during all those hours? I have spoken of the lack of acuteness to live business conditions. How can a man throw his best thought and energy into a transaction, or plan and devise ways and means to improve conditions when practically his only thinking or planning time is for a few moments in the intervals between customers or the manufacture of something in the laboratory? This condition, too, breeds laziness, for it robs a man of much latent incentive and makes true the old adage, "All work makes Jack a dull boy," and we are all more or less built like Jack.

In regard to the recuperative power of a man, much depends upon his environ-

ment, but by far the most essential thing is a constitution on which the drain of sleepless nights and dreary days will have but little effect until the reaction takes place and things begin to right themselves, or opportunities present themselves for action.

I am now brought to one of the most important parts of my paper as I see it—assertive power. We all need it if we are to succeed, but I believe as a class the members of our profession have ignored its cultivation to their great financial loss and because of a lack of it have allowed the profession to retrograde. Not only have we lost financially, we have lost morally, because we are now compelled by an ever exacting, thankless public to do any number of things without as much as “thank you,” the doing of which is “cash business” by other merchants, who would no more think of doing them gratuitously than they would of handing over their bank account. Broadmindedness, one of the essentials of any truly successful, strong man, can only be developed by the average person through contact with other broadminded persons, travel, reading, etc., and though pharmacists gain an unusually wide range of knowledge of human nature, they are notoriously narrow-minded, as is shown by their treatment of each other. Now this lack of broadmindedness has had a direct bearing on your bank accounts in more ways than one. Especially is it true of the added cost of maintenance; where one store in a location might take care of the necessities of the community, five or six keep their lights burning and their force on hand, because they are afraid the other fellow might get ahead of them on his turn to keep open. Be as good as the other fellow all the time and you can take many an hour off for further improvement or recreation.

The Pharmacist's Recreation.—Just what methods and means we shall employ to keep us healthy and build up our bodies is largely dependent upon the individual and his environments, but one thing is certain, and that is, that there are means at every hand to suit everybody. Volumes have been written on the subject and information is to be had for the asking. First of all get out to the fields and woods as much as possible, in order to get all the fresh air you can. Then, when you get there walk as much as you can to get good circulation that the new air will have every opportunity to get in its work. Now there are several ways of getting into the country, but my own experience tells me that to go there with any amount of regularity one must have some definite place to go, and I think that is best accomplished by belonging to one or the other of the many country or athletic clubs which are to be found in or near every large city and the smaller cities and towns as well. The country clubs are not as expensive as one might imagine, and since they possess so many advantages, such as shower baths, dressing rooms, telephones and the like, one can go there and still be in touch with business, for an hour or so, during the afternoon. The best part of the country club, however, is the opportunity it gives for outdoor exercise. Here are to be found tennis courts, baseball diamonds, golf links, etc., so that one's exercise or recreation may be varied and thorough. Then again being members of such clubs brings one into contact with men of other occupations and thus we have a broadening effect and the making of friends.

Another form of exercise which I would strongly recommend is that of riding. There is scarcely anything so exhilarating as a brisk ride on a good horse, and

one can make arrangements with the various riding academies in the cities, whereby it becomes quite an inexpensive recreation. Of course those of us in the suburbs or towns can own and stable our own horse, but in the city this is not practicable and is expensive.

Another means of attaining our object is to become a member of a rowing association, or have our own boat or canoe, and use it at every opportunity. It may seem commonplace to be seen rowing a boat or paddling a canoe, but we soon get used to it and the fever will increase. I have spent days in one. Though I have perforce to paddle it on the same body of water the greater part of the time, still I get some new vision of some point each time. Many other ways are to be recommended, but I think I have mentioned the more easily attained and the most beneficial.

Educating Pharmacists in Athletics.—There was heralded in the journals about a year ago the result of a baseball game between two colleges of pharmacy, and that was the first attempt on the part of pharmaceutical institutions to indulge in competitive athletics. What was the real object of that baseball game? Was it to see which institution had the better team? Well, I am compelled to admit that that did have something to do with it, but the great result of that game was to break the fetters which had bound us so long and introduce the pharmaceutical students to each other and create in them the desire for outdoor life and recreation. In the institution with which I am connected and from which many of you graduated, we have undertaken the splendid work of physical instruction and the results have been most gratifying. The gymnasium is well equipped and well lighted and ventilated, and even though it is on the fifth floor of the building the students make continual use of it. Exercises calculated to create endurance, agility, free breathing, chest development and ease of movement are given by a competent instructor, and the work is carried on in a high class manner. In connection with the exercises there is a physical examination and the data obtained are most interesting and significant. It has helped many of the students to correct defects which have troubled them for years and we hope that in succeeding years the results will be even more pronounced. The final result of this work will be to inculcate the student with desire for this sort of work and to know the advantage of it, and when he becomes a proprietor he will be more likely to want to see his clerks get the same kind of instruction and to continue the good work of physical improvement thus begun.

In concluding, then, I hope that I have awakened an interest in the all important subject of the proper development of our bodies, that we can put our best into everything which we undertake, and I hardly think that any further arguments are necessary to convince my hearers that this subject has a very direct bearing on their earning capacity. I am also just as sure that they will agree with me that it is a most neglected asset, though one most likely to bring us comfort, for we often hear about the oil king who would give his fortune to be able to eat a square meal.

Finally let me urge the gentlemen present to think seriously over this subject and to put into practice their conclusions, and by their advice and example to help others do the same, that our profession may advance, its members enjoy the fruits of this world and our posterity be given the advantage of rugged constitutions.

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

JOHN ATTFIELD.

JOSEPH P. REMINGTON.

On March 18, 1911, there passed away one of the strongest men of the Victorian era, who had given up the greatest part of his life in improving the profession of pharmacy by his chemical knowledge, and his devotion to the best interests of the sciences which he loved, and of which he was generally acclaimed a master.

While the name of Michael Carteighe was known in America to the initiated, the name of Attfield is as familiar to those of the present generation as Proctor, Parrish, or Squibb. It is not the intention to draw comparisons in the careers of Attfield and Cartheighe, two stalwart defenders of the faith; for while both were intellectual giants, who consecrated their lives to the benefit of pharmacy, they were totally different in their personalities and the fields which each had selected for his activities.

John Attfield was a great educator. He wrote a book at a time when it was sorely needed, which drove away the mists which had gathered upon the chemical horizon, and pointed a course which led into a cleared atmosphere. The first edition of this book was instantly successful, and the English edition was probably no less successful than the one published in America. It has passed through nineteen editions. But even a brief review of his life is wanting if the publication of this book is given the greatest prominence.

Attfield was learned, resolute, brave and persistent. He was born in 1835, at Barnet, and the Rev. Alexander Stuart was his school teacher. Although he was destined to become a great teacher in chemistry, at the age of fourteen he was apprenticed to W. F. Smith, Ph. C., of Walworth, with whom he remained five years. He was sent to Bloomsbury Square, London, to enter the School of Pharmacy of the Pharmaceutical Society of Great Britain, and in 1854 was awarded the medals in chemistry, pharmacy, and in botany and materia medica.

Dr. Stenhouse, professor of chemistry in the school of medicine at Saint Bartholomew's Hospital, appointed John Attfield junior assistant. Among the other candidates for this position were Crookes, Mathieson, and Henry Watts, editor of Watts' Dictionary. Dr. Edward Frankland succeeded Dr. Stenhouse, and Attfield remained with him as demonstrator, and assistant in many of his researches.

At the age of twenty-seven, John Attfield was appointed director of the Laboratory at the Society's School, and he afterwards became professor of practical chemistry, when Professor Theophilus Redwood gave up a part of his work.

Professor Attfield then went to Tübingen, to complete his chemical studies, and obtained there the degree of Doctor of Philosophy. His thesis on "The Spectrum of Carbon" was read at the meeting of the Royal Society in June, 1862.

In 1896, after thirty-four years of teaching, his resignation was tendered, and upon his retirement from these active duties, a remarkable demonstration of appreciation and affection on the part of his friends and old pupils occurred on July 10, 1896. An album containing the signatures of two hundred public friends and one thousand grateful students was presented to him with a massive silver tea and coffee service. In the address on that occasion, which was signed by two eminent chemists, Charles Umney and John Moss, the following words occurred:

"On the occasion of his retirement from the Chair of Practical Chemistry in the School of the Pharmaceutical Society of Great Britain, a chair which he had occupied for a period of thirty-four years, from 1862 to 1896, to the great advantage of the recipients of his instruction. During the whole of this long tenure of his important office, Professor Attfield not only won and retained the respect of successive generations of students by the lucidity, accuracy, and thoroughness of his teaching, but he also endeared himself to them by his unflinching tact, kindness and urbanity. Not less successfully did he serve pharmacists and medical practitioners, and through them the public, by his versatile ability, untiring energy, and power of organization as an editor of the *Pharmacopœia*, and author of a manual of chemistry, and generally as a worker who unceasingly applied the resources of the great science of chemistry to the demands of the great art of healing. It is the earnest hope of his pupils and his many other public friends that he may long enjoy those blessings of health and leisure which he has so well earned. On behalf of a general committee of three hundred and fifty members, and of the whole twelve hundred signatories, including many prominent pharmacists and eminent men of science of all countries."

In the thirty-four years of Professor Attfield's connection with the Pharmaceutical Society of Great Britain, 2367 students received instruction from him. While this work and that of revising Attfield's *Chemistry* are achievements the most notable in his career, they are far exceeded by his work upon the *British Pharmacopœia*. He was one of three editors of the *British Pharmacopœia*, 1885; editor of the *Addendum* in 1890; editor of the *British Pharmacopœia* in 1898, and of its *Indian and Colonial Addendum*, 1900. During this time Professor Attfield contributed many papers upon chemical subjects to pharmaceutical literature.

Professor Attfield was one of the Founders of the British Pharmaceutical Conference in 1863, and was its Senior Honorary Secretary for seventeen years. At the close of this long service the members of the Conference presented him with 500 volumes of choice books which "ministered to the pleasures of a well-earned retirement." He never lost his interest in this national body, as he served, as its President in 1882, and in 1883, and his views advocating and pleading for higher education were continually quoted.

Professor Attfield was frequently placed in embarrassing situations on account of his connection with the *British Pharmacopœia*. Constant effort was made to increase pharmaceutical influence in the work of revision, but the medical influence steadily resisted their demands. During this time, Dr. Attfield wanted pharmacists

and physicians to work in harmony to produce an Imperial Pharmacopœia. The most strenuous years of his life were occupied in establishing workable relations between the two professions.

The Chemist and Druggist of March 25, 1911, records that Dr. Attfield "began pharmacopœia revision when chaos prevailed in arrangements and manners, and he left it fifteen years later working smoothly, with perfect harmony between all parties, and the British Pharmacopœia universally adopted throughout the Empire."

Dr. Attfield was a man of great activity and versatility. He was always busy and he did nothing superficially. If he could not do good work in any direction in which his aid was sought, he would not attempt the work. A mistake or an error, especially one which he made himself, gave him personal pain. As a chemist he enjoyed a large practice as a consultant, especially in the subject of water and sewerage. But he was frequently consulted on all kinds of subjects requiring chemical knowledge.

For four years he was a member of the Council of the London Chemical Society, and was one of the founders of the Institute of Chemistry; and he was elected a Fellow of the Royal Society, an honor of great distinction in Great Britain. He was an honorary member of the American Pharmaceutical Association and over twenty foreign and colonial bodies.

One of the great sorrows of his life was the death of his son, Dr. Donald Harvey Attfield, who had received an excellent education at Cambridge, and was afterwards a demonstrator at King's College, London. He was a quarantine medical officer at Suez for a number of years, but while engaged in this work he was accidentally infected with tuberculosis, and eventually his life was sacrificed to the terrible white plague. Mrs. Attfield and two daughters remain to mourn their great loss.

The writer's recollections of Attfield upon first acquaintance are vivid. Quickness and facility of speech, a keen sense of humor, and general alertness made him appear at first like a typical American. Further acquaintance, however, proved that he was British to the core. Americanisms in speech interested him greatly. At a reception at Bloomsbury Square, he turned suddenly and asked the writer how Professor Maisch was. The answer, "He's keeping his end up very well," startled Attfield, and he moved off to say to one of his confreres, "What can he mean?" Whereupon four of his friends joined him and said, "What can you mean by such an expression?" Their smiling countenances proved that they were laughing at the Americanism, and the explanation, that the expression had originated from two men carrying a plank, and if one lagged he was dubbed "the man who could not keep up his end well." The explanation seemed to amuse the English brethren no less than the expression itself.

At the hotel table in Glasgow, in 1896, he heard an American ask, on a very hot day for some ice water. He immediately attacked the sufferer with, "Why do you Americans drink *iced* water? Don't you know that it ruins your stomachs, and will carry you off eventually, if you persist in icing your stomachs?" Subsequently he invited the American friend to his room, and showed him how he himself was suffering from inflammation of the stomach, for he had to use lavage

every day for a number of years. He recovered from this extremely annoying physical trouble, and neuritis developed in the later years of his life, from which he suffered greatly at times.

In 1871 he organized a movement to aid the Chicago pharmacists, when the Chicago College of Pharmacy was destroyed by fire, and his name is honored in this college for this great service in time of need.

John Attfield's heart was always young, and he sympathized with the problems and troubles of young people. His hand was always held out to them to give them help in every way that he could. His cheering words will never be forgotten by thousands of the youth of Great Britain.

One of his great ambitions was to visit America, and he even went so far as to fix a time when he thought he could leave; but unforeseen events occurred each time, and the promised pleasures had to be abandoned.

With Professor Attfield's pronounced views on hygiene, and his long service in protecting the public health, it should not surprise his family or friends that he should direct that his body should be cremated.

Thus has passed away into the great beyond, one of the noblest of our race; gifted beyond his fellows, he used his talents ungrudgingly, persistently, and successfully in the service of his fellow men.

"At the hands of thief or murderer few of us suffer, even indirectly. But from the careless tongue of friend, the cruel tongue of enemy, who is free? No human being can live a life so true, so fair, so pure as to be beyond the reach of malice, or immune from the poisonous emanations of envy. The insidious attacks against one's reputation, the loathsome innuendoes, slurs, half-lies by which jealous mediocrity seeks to ruin its superiors, are like those insect parasites that kill the heart and life of a mighty oak. So cowardly is the method, so stealthy the shooting of the poisoned thorns, so insignificant the separate acts in their seeming, that one is not on guard against them. It is easier to dodge an elephant than a microbe."—*William George Jordan*.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter.

(Fifth Installment)

Atropa Belladonna: Influence of Nutritive Elements on Growth and Alkaloid Content.—S. Vreven and C. Schreiber observe that wild belladonna is generally more active than the cultivated plant, and conjecture that this may usually be attributed to the influence of nutritive elements of the soil upon which it grows. The wild plants grow on ground chosen by themselves as best adapted to their vitality; the cultivated plants grow on soil chosen for them, which may not contain the necessary constituents favorable to the normal formation of alkaloidal bases. The small proportion of alkaloid so often found in the cultivated plants may be attributed either to deficiency or excess of the necessary food, or to want of equilibrium among the nutritive elements, nitrogen, phosphoric acid, and potash. Experiments have been made with soil deprived of the nutritive elements, and adding to it suitable manure. The results are summarized thus: Belladonna is shown to be very susceptible to the action of phosphoric acid, nitrogen, and especially potash. The want of these elements is seen in a distinct lowering of the yield. Plants cultivated in pots containing no added manure perish rapidly. The depression in the yield is much more pronounced in the roots than in the other organs of the plant. The time of flowering is retarded by absence of nitrogen and phosphorous, but not by that of potash. Plants deprived of the three elements referred to present a characteristic coloration; without nitrogen, they are chlorotic; without phosphorous, there is a violet tint, particularly of the veins; without potash, the plants are flabby. As to the alkaloidal content, the leaves of plants, grown on soil poor in nitrogen or phosphorous, contain little alkaloid, while in the case of plants cultivated in the absence of potassium salts, the leaves are

rich in alkaloid. The experiments were made with a fertilizer having the following composition: Ammonium nitrate, 10 gms.; sodium phosphate, 12 gms.; potassium carbonate, 5 gms.; calcium carbonate, 4 gms.; magnesium carbonate, 4 gms. The results obtained by omitting one or other of the ingredients are as indicated above. The cultures were made on a muddy earth of average consistence (l'alluvion de la Herck), to 22 kilograms of which the above quantity of nutritive mixture was added.—Pharm. Jour. and Pharmacist, June 24, 1911, 843; from Ann. de Pharm., March, 1911, 97.

Bryonia Dioica: Constituents of the Root.—The principal constituent of the root *Bryonia dioica* described by previous investigators is bryonin, a glucoside body to which various formulas have been assigned. Dr. F. B. Power and Dr. C. W. Moore have now subjected this root to a full chemical examination with the following results: The drug contains an enzyme which causes the hydrolysis of amygdalin, salicin, and also the glucoside of bryony. An alcoholic extract of the drug was prepared and distilled in steam, when a small quantity of volatile oil passed over it. The non-volatile residue consisted of a dark aqueous liquid and a brown resin. The aqueous liquid yielded to the ether a colorless crystalline neutral substance, $C_{20}H_{30}O_3$, melting at $220-222^\circ$, specific rotation $(\alpha)_D = +58.6^\circ$. By treatment with amyl alcohol a yellow bitter amorphous glucosidic product was obtained. The aqueous liquid also contained an amorphous alkaloidal principle and a sugar giving an osazone melting at $208-210^\circ$. The brown resin was extracted in the usual way with various solvents, but it was only from the petroleum ether extract that any definite products were obtained. This yielded a phytosterol, $C_{27}H_{46}O$, which is optically inactive, oleic, linolic, palmitic, and stearic acids, and a dihydric alcohol, bryonol, $C_{22}H_{34}O_2(OH)_2$, which gives color reactions similar to those of the phytosterols. This alcohol belongs to the series $C_nH_{2n-6}O_4$, of which three other members, ipurganol,

$C_{21}H_{32}O_2(OH)_2$, grunderol, $C_{23}H_{36}O_2(OH)_2$, and cucurbitol, $C_{24}H_{38}O_2(OH)_2$, have been previously described by Dr. Power. The authors have also examined bryonin, and conclude that it is a complex mixture not entirely glucosidic in character. Physiological experiments made by Dr. Dale showed that bryonol and the alkaloidal substance are purgatives, but the glucoside is inactive.—Pharm. Journ. and Pharmacist, May 13, 1911, 626.

Digitalis: Action of old Powder on Hydrogen Dioxide.—E. Choay communicates the results of an investigation regarding the action of old digitalis powder on hydrogen dioxide. A quantity of fresh leaves of *Alsace digitalis* was divided into three lots and dried: (1) *in vacuo* in the cold; (2) in the air; (3) in an oven at 40° . The dried leaves, powdered, were placed in desiccators. After five months, the powder from (1) was still quite green, and possessed the odor of the fresh leaves. The powders were then tested to see if they still retained the property of decomposing hydrogen dioxide, and if so, if they had different degrees of catalytic activity. For the purpose of comparison, 1 gm. of each powder was macerated for two hours at 15° , in 40 cc. of distilled water, when there was added 10 cc. of 12-volume, neutral, hydrogen dioxide; after an hour's contact, the titre was taken in each case on 5 cc. of the filtered liquid, with a solution of permanganate (3.14 gms. $KMnO_4$ per litre). A parallel series of tests was made of macerations of 1 gm. of the powder and 40 cc. of water, but before the addition of hydrogen dioxide the liquids were boiled for ten minutes and the original weight made up after cooling, and then titrated with permanganate under the same conditions. A control mixture made with 40 cc. of water and 10 cc. of the hydrogen dioxide showed that 5 cc. required 21 cc. of the permanganate solution. The results obtained were as follows: Powder (1), maceration not boiled, required 9.9 cc. of permanganate; boiled maceration, 22.1 cc. of permanganate. Powder (2), respectively, 13.3 cc. and 23.2 cc. Powder (3), respectively, 20.5 cc. and 22.2 cc. The author concludes that the method of drying the leaves has a considerable influence on the catalytic activity. Indeed, after five months' preparation this activity is about twenty times greater for the leaves dried *in vacuo* in the cold than for those dried in an oven; those dried in the air appear to have an intermediate activity.—

Pharm. Journ. and Pharmacist, May 31, 1911, 621; from Jour. de Pharm. et Chim., 1911, 3,343.

Rhubarb: Constituents.—F. Tutin and H. W. Clewer have contributed a paper detailing the results of their researches on the constituents of rhubarb. Sun-dried rhubarb was exhausted with hot alcohol, and the concentrated extract obtained by evaporation of the alcohol was distilled in steam. The volatile constituents consisted of a small quantity of essential oil and palmitic and hexoic acids. The non-volatile portion was extracted with water, and from the resulting liquid by extraction with ether and treatment of the residue from the ethereal solution with petroleum ether and various alkalies the following substances were isolated: Cinnamic and gallic acids, rhein, a new anthraquinone derivative, $C_{17}H_{10}O_6$ m. p. $297-297^\circ$, to which the name rheinolic acid is given, emodin, aloemodoin, emodin mono-methyl ether, and chrysophanic acid. The aqueous liquid yielded to amyl alcohol a crystalline mixture of glucosides of rhein, emodin, aloemodoin, emodin mono-methyl ether, and chrysophanic acid, as well as some tannin, gallic acid, and an amorphous non-glucoside resin; the latter, which, on hydrolysis, yielded cinnamic and gallic acids, rhein, emodin, aloemodoin, emodin mono-methyl ether, and chrysophanic acid, and a new compound having the formula, $C_{14}H_{12}O_8$, m. p. 256° , probably trihydroxy-dihydroanthracene. This resin is the principal purgative constituent of the drug. Dextrose in a crystalline state, and levulose were also obtained from the aqueous liquid. The water-insoluble portion of the non-volatile substance yielded to petroleum ether a mixture of palmitic, stearic, oleic, linolic, and linolenic acids, and also a phytosterol (verosterol), $C_{27}H_{46}O$, as well as rhein, rheinolic acids, emodin, aloemodoin, emodin mono-methyl ether, chrysophanic acid, a trace of a substance not melting at 340° , and more of the crystalline mixture of glucosides. The presence of aloemodoin in rhubarb has not been previously recorded. It therefore appears that the "rheoanthra-glucoside" of Tschirch and Henberger was a mixture of the crystalline glucosides of the anthraquinone derivatives, and the non-glucosidic resin referred to, while "rhabarberone" and "isomodoin" were simply impure aloemodoin.—Pharm. Journ. and Pharmacist, April 22, 1911, 529.

Ergot: Active Constituents and Assay.—

A. Kazay contributes an interesting paper on the active constituents of ergot and their assay. According to Tanret, Kobert, and Keller, the chief active constituent of ergot is the white crystalline substance ergotine, $C_{85}H_{40}N_4O_6$. For the detection of this substance the Hungarian Pharmacopœia adopts Keller's test, which is as follows: The substance is dissolved in concentrated acetic acid containing a little ferric chloride, and concentrated sulphuric acid poured on. A violet-blue layer is formed at the surface of separation of the two liquids. Ergotinine is an unstable substance, and in presence of moderately concentrated acids changes into cornutine, an amorphous water-soluble body, which gives a red iridescent layer by Keller's test. The author was unable to get anything but the red color of cornutine by Keller's test when using commercial preparations of ergot which had been exposed for some time to a high temperature in the process of manufacture. In order to investigate the relationship of cornutine to ergotine the author prepared an extract by Keller's process. The color layers obtained by the above test were examined spectroscopically. With cornutine an absorption band in the blue portion of the spectrum is obtained, and this was readily observed when testing commercial extracts. The parahydroxyphenylethylamine of Berger and Dale is probably a decomposition product of ergotine or of proteid matter. Several other active constituents of ergot have been described, but none gives any characteristic reaction which might be used to detect the presence of ergot. For this purpose the presence of the coloring matter sclerythrin must be proved by a spectroscopic examination. For the assay of ergot preparations the author recommends extraction with ether after treatment with alkali and determination of the nitrogen in the residue from the ethereal extract, by a modification of Kjeldahl's method.—Pharm. Journ. and Pharm., April 15, 1911, 499, from Ztschr. d. Allgem. Aestr. Apoth. Ver. (1910), 547.

Helianthus Annuus: Basic Constituents of the Flowers.—In Russia various parts of the sunflower are in common use for medicinal and other purposes, tinctures prepared from the fresh flowers and leaves being used in domestic practice as a substitute for quinine. In the belief that the activity of the flower depended on alkaloidal substances, E. Busch-

mann examined an extract prepared from the flowers and stalks of the plant. When this was dissolved in water, fatty and resinous substances separated, which were removed by shaking out with petroleum ether; the aqueous liquid was then precipitated by bismuth potassium iodide, the precipitate washed and decomposed by lead oxycarbonate, and the alkaloidal solution acidified with hydrochloric acid and concentrated. Crystals of betaine hydrochloride were thus obtained, and after as much as possible has been removed, the mother-liquor was examined and found to contain choline chloride. The two bases betaine and choline were identified by preparing and analyzing a considerable number of characteristic double salts and other compounds. No other basic substance was found, but it appeared that the proportion of these two bases present was enough to account for the observed activity of the extract.—Arch. d. Pharm. 240 (1911), No. 1, 1.

Mangrove Bark: Uses and Constituents.—

H. Bocquillon says that there are two classes of mangrove bark, the *red* and the *grey*, which are used industrially as a tanning substance and therapeutically as a remedy for leprosy, both varieties represented in a number of species, forming trees 4 to 6 meters in height. The red belong to the Rhizophoraceæ, the grey to the Combretaceæ. The species (red) employed in therapeutics are *R. mangle*, *R. mucronata*, *Bruquiera gymnorhiza*, and *Coccoloba uvifera*; the species (grey) used therapeutically are *Conocarpus erecta*, and *Avicennia tomentosa*. Analyses of the barks of the various species give similar results; the ash is 5.5 per cent., consisting of carbonates and chlorides of potassium, sodium, calcium, and iron. The percentage composition of the bark is given as follows: Wax, 0.335; fatty matter, 0.335; tannin, 20.00; resin, 13.55; starchy matter, 5.00; glucoside, very abundant; alkaloid, none. The red coloring matter becomes cherry-colored with alkalis turning to yellow, with formation of a precipitate with acids. Mangrove is used in the same forms as cinchona-powder, tincture, soft extract, syrup, wine, and especially liquid extract, and decoction. The dose of the liquid extract is 5 gm. twice daily, increasing to 30 gms. twice daily if desired; the dose of the soft extract is from 2 to 8 gms. daily. Used in leprosy, it is administered in the form of liquid extract, in doses of 10 gms. daily, but in two instalments, in-

creasing by 5 gms. a day up to 60 gms. The soft extract is given in 8 gm. doses daily, but in this form gastric intolerance and giddiness are sometimes produced. The drug is also used in the form of baths and lotions, and the decoction contains 30 gms. per litre. Amelioration of the disease is observable in fifteen days, but the cure requires a year. Besides its use in leprosy, mangrove is valued in the colonies as an astringent in lotions for the eye-trouble; internally it is used in diarrhoea and for tuberculosis, while the powdered bark is used as a febrifuge.—*Pharm. Journ. and Pharmacist*, June 24, 1911, 843; from *Rep. de Pharm.*, May, 1911, 195.

Ash Seeds: Properties of the Fixed Oil.—An investigation of the fixed oil, extracted by W. Bach from the seeds of the ash (*Fraxinus*) in a yield of 9.7%, shows this oil to have the following characters and constants: It was brownish yellow, moderately viscous, and had an odor resembling that of tea. It possessed the following constants: Specific gravity, 0.9181; saponification value, 168.5; iodine value, 129.5; Reichert-Meissl value, 1.68. The unsaponifiable portion amounted to 5.5 per cent. and consisted of phytosterol. The freshly-prepared oil contained 1.71 per cent. of free acid, reckoned as oleic. The fatty acids obtained by saponification of the oil melted at 36.8° and solidified at 28.6°, and had an iodine value of 125.8 and saponification value of 181.7. The oil appeared to resemble the oils of soya beans and of sunflower seeds, and to possess very feeble drying properties, an exposed thin film not being hard after fourteen days.—*Pharm. Journ. and Pharmacist*, June 24, 1911, 843; from *Chem. Ztg.*, May 4, 1911, 478.

Cork: Chemical Nature and Constituents.—It is well known that cork contains a substance, suberin, which can be saponified with potassium hydroxide solution. From this solution, in addition to other fatty acids, *phellonic acid* can be isolated. This acid is, according to the author, a hydrocyclic substance. On oxidation the ring is broken and the aliphatic phellogenic acid or its isomer isophellogenic acid is obtained. In contradistinction to other workers, M. von Schmidt now has shown that the portion of cork soluble in chloroform contains not only cerin but also glycerides of fatty acids, and that the true cork substance is free from these substances. Investigations of the chemical nature of cork

have shown that phellonic acid forms anhydrides, and these anhydrides are present in cork, along with polymers of liquid and solid fatty acids. On heating the crude fatty acids from cork, water is split off, and a product is obtained which is completely insoluble in indifferent solvents. The fatty acids thus changed are unalterable by further heat, they are impermeable to gases, and represent the true cork-substance. If filter paper, or better, fine sawdust, is saturated with the fatty acids, and then heated to 140° a substance is obtained which is indistinguishable from cork, except that the structure is absent. Besides phellonic acid, there appears to be three other fatty acids present in cork.—*Pharm. Journ. and Pharmacist*, April 1, 1911, 433; from *Oest. Chem. Ztg.*, 1911, 21.

Burnt Sponge: Constituents.—The charcoal obtained by the ignition of sponge without free access of air has had more or less application in medicine since before the discovery of iodine in 1811 by Courtois, and a tincture of such charcoal (*Spongia Usta*) enters into homœopathic pharmacy. Recorded investigations into the constituents of burnt sponge have shown very different results, and it appears that the material found in commerce does vary considerably. Seven samples, obtained from different sources, contained from 0.31 to 0.81 per cent. of iodine, 7.92 to 23.16 per cent. of lime (CaO) as calcium carbonate, 1.05 to 2.21 per cent. of iron, and from 3.35 to 15.30 per cent. of sand. Tinctures prepared with 90 per cent. and 60 per cent. alcohol, and analyzed, showed that the latter was more suitable for dissolving the principal constituents. The average amount of iodine in a number of samples of the tincture was 0.075 per cent.—*Apoth. Ztg.* XXVI (1911), No. 33, 317.

Tincture of Strophanthus: Proposed Process of Preparation and Assay.—J. Haycock discusses the different methods of assaying strophanthus seeds and the tincture, and recommends the following which, as applied to the seeds, may also be used for standardizing the tincture.

(1) Twenty gm. of the powdered seeds are percolated with either petroleum ether or ethyl ether, to remove the oil, as it has been proved beyond doubt that neither of these solvents dissolve any appreciable amount of strophanthin.

(2) The seeds so treated, are then perco-

lated with 70% alcohol until exhausted; the tincture is evaporated to a soft extract at a low temperature, the extract dissolved in 100 cc. of water and the solution filtered into a separator.

(3) Then add to the filtrate 2 cc. of 25% H_2SO_4 , and shake out the resulting mixture three times with 20 cc. of ether, to get rid of any trace of oil that might be present.

(4) The aqueous solution of the extract, after this treatment, is warmed on a water bath for one hour at 75°C ., whereby the strophanthin is split into strophanthidin and strophanthobiose methyl ether.

(5) When cool, the liquid is returned to the separator and shaken out three times successively with 10 cc. of chloroform, which dissolves the strophanthidin, and leaves it on evaporation to a small bulk in a tared dish, crystallization being facilitated by the addition of a little alcohol; it is finally dried below 65°C . and weighed.

The author suggests that the *Tincture of Strophanthus* be made in accordance with the above observations—removing the oil from the seeds, percolating the oil-freed seeds with 70% alcohol, and adjusting the percolate to a standard of 0.1% w/v strophanthin by the process described. This chemical method of standardization is regarded by the author to be quite as good, if not better, than the present method of physiological assay.—Pharm. Journ. and Pharmacist, April 29, 1911, 553.

Bixin: Chemical Constitution.—A. Heiduschka and H. Riffart observe that, although bixin has long been known as a constituent of *Bixa orellana*, its constitution has not been established. The formula assigned by Zwick, $\text{C}_{27}\text{H}_{26}\text{O}_2(\text{OH})_2\text{OCH}_3$, appears to be erroneous; only one hydroxyl group is present, and the di-potassium salt is only formed by the saponification of the methoxyl group. The empirical formulæ, $\text{C}_{26}\text{H}_{34}\text{O}_5$ and $\text{C}_{28}\text{H}_{34}\text{O}_5$, have both been given for bixin, and the latter appears to be the correct one. If bixin is brominated in glacial acetic solution, ten atoms of bromine are added, and the product contains 62.48 per cent. of bromine; but if the bromination is carried out in chloroform solution, the product contains 71.45 per cent. of bromine and appears to be a tetrahydromide of the decabrombixin, $\text{C}_{28}\text{H}_{38}\text{O}_5\text{Br}_{14}$, or $\text{C}_{28}\text{H}_{14}\text{O}_5\text{Br}_{10} \cdot 4\text{HBr}$. Similarly, chlorination of

bixin in chloroform solution gives a compound containing 51.92 per cent. of chlorine, corresponding to the formula $\text{C}_{28}\text{H}_{34}\text{O}_5\text{Cl}_{10} \cdot 4\text{HCl}$. The iodine absorption value of bixin, determined with either Wijs' or Hubl's solution, agreed with the addition of ten atoms of iodine. Dry hydrochloric acid gas acting on bixin in chloroform solution gave the compound $\text{C}_{28}\text{H}_{34}\text{O}_5\text{HCl}$.—Arch. d. Pharm. 249 (1911), No. 1, 39.

Starch: Preparation as an Indicator.—L. Mathiew observes that in using starch as an indicator in end reactions with iodine solutions there is often indistinctness of the terminal point, when the blue color may be evanescent or the color may vary from violet to rose, due to the presence of dextrin. Further, starch solutions may contain swollen grains, which retain the blue color somewhat persistently, and thus destroy the delicacy of the end reaction. The author, therefore, advises the use of soluble starch, which he prepared thus: The starch flour is digested for some time with a solution of hydrochloric acid, 1 in 1,000, then washed with distilled water, dried at 30° , and heated for some hours in an oven at about 100° . The weak acid treatment takes out traces of alkaline bases and alkaline earths, and transforms neutral phosphates into acid phosphates. When it is reduced to the dry heat its physical state is gradually modified into that of a soluble starch. The starch thus prepared and dried keeps perfectly. For use as a reagent 1 gm. is dissolved by boiling for a few moments with 100 cc. of water and filtering. The resulting solution is very limpid, free from granules, and with iodine is colored pure blue, the blue color being instantly discharged on removal of the excess of iodine. The use of preservatives is condemned.—Pharm. Journ. and Pharmacist, April 1, 1911, 433; from Ann. de Chim. Analyt. 15 (1911), 51.

Phenol: Simple Method of Determination of the G. P. V.—F. Lehmann directs attention to the method of the G. P. V. for determining phenol, which satisfactorily corrects certain errors in the "tribromide" method formerly official. The process consists in adding to a solution containing phenol known quantities of solutions of potassium bromide and bromate, acidifying with sulphuric acid, and shaking in a stoppered flask; after fifteen minutes standing the excess of bromine is determined by adding potassium iodide

and titrating with thiosulphate. If the bromate solution is made to contain 1.6702 gms. of KBrO_3 in 1 litre, 50 cc. of it corresponds to 30 cc. of N/10 thiosulphate; if therefore 50 cc. of the bromate solution is employed in a given case, the number of cc. of thiosulphate used is to be deducted from 30, and the difference multiplied by 0.001567 gives the weight of phenol precipitated.—Apoth. Ztg. XXVI (1911).

B-Amino-ethyl-glyoxaline: One of the Active Principles of Ergot, obtained by Synthesis.—Dr. F. L. Pyman has applied Gabriel's method for the preparation of glyoxaline derivatives to the production of 4- (or 5) B-amino-ethylglyoxaline, one of the active principles of ergot, on a commercial scale. Diaminoacetone is treated with potassium thiocyanate, and the resulting compound on removal of the sulphur yields 4-aminomethylglyoxaline. This is converted successively into the alcohol by means of nitrous acid, into the chloride by means of sodium hypochlorite, and into the cyanide by means of potassium cyanide. The cyanide then on reduction yields the 4-B-amino-ethyl-glyoxaline, which, as obtained by this method of synthesis, is a very reactive substance.—Pharm. Journ. and Pharmacist, April 22, 911, 530.

Ozone: Generation by a Chemical Method.—P. Malaquin has made an addition to the small number of purely chemical processes by means of which ozone may be generated. When ammonium persulphate, 20, is heated on the water-bath with nitric acid, specific gravity 1.310, reaction takes place rapidly at 65 to 75° C. with evolution of gas. This gas is found to consist of 3 to 4 per cent. of ozone, 4 to 4.5 per cent. of nitrogen, less than 1 per cent. of carbon dioxide, and the rest oxygen. Gas is evolved very slowly at the normal temperature of the laboratory; and more rapidly at 50 to 60° C., but with considerable rapidity at the temperature above indicated. The author has devised, and figures, a special apparatus, wholly of glass, for the generation of ozone by this process. Although the yield of ozone is not very high, the method affords a convenient means for its production. The persulphates of potassium and of sodium do not appear to yield so much ozone with nitric acid as the ammonium salt.—Pharm. Jour. and Pharmacist, May 6, 1911, 587; from Journ. de Pharm. et Chim., 1911, 3,329.

REPORT OF COMMITTEE ON DRUG MARKET.

(Continued from page 375)

COPAIBA. Ten samples were free from fixed oils, turpentine and paraffin oils, but eight of them contained gurjun balsam. R. P. McKEOGH. The test for gurjun in copaiba is too delicate for use in inexperienced hands, often giving very fallacious results. A test for rotary property should be in the U. S. P. to exclude African Balsam. The oil should be distilled and tested and not be below -5° . Genuine oil rotates as high as -35° . DRUG TOPICS.

COTO. This drug continues unobtainable, according to the statement of importers. None has been received in the port of New York for several years. H. H. RUSBY. **PARA-COTO.** This drug has been almost unobtainable and almost everything that has been offered under this name has been spurious, eight different barks having appeared under this name during the year. H. H. RUSBY.

CREAM TARTAR. Two samples offered as strictly U. S. P. tested 96.48 per cent and 98.72 per cent only. E. H. GANE.

CRESOL. One lot rejected, as it contained a large percentage of phenol. E. H. GANE.

CUBEB. The official standards for this article should be carefully revised, after a thorough investigation of the relative values of the different forms of the drug. The definition calls for the "unripe but fully grown fruit," but there are the best of reasons for believing that the fruits when not more than half grown are far richer in active constituents than when fully grown. Certainly the percentage of oil is then very much greater. Before the official definition can be revised intelligently, the relative percentage of all the other constituents should be carefully investigated, and if the present indications should be thus verified, the words "but fully grown" should be deleted. H. H. RUSBY.

CUDBEAR. Varies much in quality.

Sample	Moisture	Ash	Chlorine in Ash as NaCl
1	7.0	11.7	1.88
2	4.8	42.7	31.23
3	10.5	66.8	59.80
4	4.95	48.85	42.40
5	3.0	66.25	60.70
6	6.7	4.40	Trace

Sample	Dye test	Filtrate from Lead S. S.	Dying on Cotton, Alum Mordant
1	O. K.	Slt. pink	Slt. color
2	O. K.	Slt. pink	Colorless
3	O. K.	Slt. pink	Slt. color
4	O. K.	D'e'd pink	Slt. color
5	O. K.	D'e'd pink	Slt. color
6	O. K.	Colorless	Colorless

*Presented at the Fifty-ninth Annual Convention.

DIGESTIVE SOLUTION. Claimed to be very active, capable of digesting starches, albumins, fibrins, etc. It tested as follows:

Alcohol, 15.14 per cent; extractive, sug., etc., 27 per cent; 1 part digests albumen, none; converts starch, $2\frac{1}{2}$ parts; dry fibrin, 0.73. E. L. PATCH.

DIGITALIS. Increasing doubt is being cast upon the claim that a second year leaf is in any way superior to that of the first year. It is not the province of a pharmacognosist to pass upon such a question, and it is greatly to be regretted that pharmacologists do not determine the case so that we may know how to act in regard to it. There is, moreover, grave doubt as to whether the pharmacologists are on the right track in their tests. Their idea seems to be that the therapeutical value of this drug varies directly with its toxic power upon the animals experimented upon. Now the object of administering *Digitalis* therapeutically is not to kill the patient, and there is no little reason to believe that the therapeutical constituent is not the one that kills the cat. Furthermore, the variation in its percentage may not correspond at all with that in the percentage of the latter. H. H. RUSBY. It has been well determined that leaves of first year growth are equal to or better than those of second year growth, and that a well-cured drug does not deteriorate. See CAESAR AND LORETZ in *Chemist and Druggist*. Assays of *Digitalis* powder over eighteen months showed no appreciable change. E. L. PATCH.

ECHINACEA. Three lots were found to consist of the roots of some species of *brauneria* other than *brauneria pallida*, which is the source of true *Echinacea*. Another lot consisted of the roots of *rudbeckia fulgida*. O. P. & D. Reporter.

ELIXIR CALISAYA N. F. Twenty-five samples from retail stores: Alkaloids, 0.042 to 0.318 per 100 Cc. Color from colorless to nearly black. In several a heavy ppt. ROY A. PECKHAM.

ERGOT. There has been considerable trouble during the year from the offerings of *Ergot* of poor quality. The importance of a drug of first quality is more important in the case of *Ergot* than of most drugs, and its quality is exceedingly sensitive to changes which result in only slight differences in appearances and physical properties. Considering that there is no chemical standard for this drug, it thus frequently happens that an importation which demands rejection on therapeutical grounds will appear satisfactory to the ordinary observer, so that a controversy will arise. H. H. RUSBY.

ETHER U. S. P. 1890. Ether that has stood for some time may contain hydrogen dioxide, supposed to be developed by action of ozone, formed by evaporation of Ether, upon the water present. DRUG TOPICS.

FORMALDEHYDE. Often runs a little low owing perhaps to partial polymerisation. Several lots tested 37.2 per cent to 38 per cent. W. L. SCOVILLE.

FRANGULA. A spurious bark, apparently a

species of *Rhamnus*, has been found mixed in considerable quantity with *Frangula*, and should be carefully watched for by dealers. The bark, in quills of the same size, is much thicker than that of *Frangula*. It is rougher on the surface, of a more dull gray, has a shorter fracture, but the resemblance to *frangula* in some of its forms is rather close. H. H. RUSBY.

GAMBIR. Eight samples gave the following:

Ash	Soluble in alcohol
4.03	80.8
4.07	78.6
4.80	76.9
19.3	77.5
22.6	78.4
22.7	78.
31.5	79.5
32.	79.5

J. B. YOUNG.

GINGER ROOT. Jamaica Ginger gave following percentages of alcoholic extract: 6 per cent, 4.6 per cent, 3.3 per cent, 3.5 per cent, 3.3 per cent, 3.8 per cent, 5.9 per cent, 4.6 per cent. E. L. PATCH.

GLYCERIN. Manufacturers pay more attention to getting a colorless glycerin than to purity. In consequence most of the glycerins will develop a bad odor in acid mixture from the fatty acids and aldehydes contained in them. W. L. SCOVILLE. 5 Cc. glycerin with 5 Cc. of water and 1 Cc. diluted sulphuric acid, shaken and set aside for fifteen minutes, should not develop a disagreeable odor. A. B. LYONS.

GOLDENSEAL. The small amounts obtainable test high in alkaloid. Seven packages assayed 2.96, 3.01, 3.26, 3.3, 2.9, 3.5, 2.72 per cent respectively. E. H. GANE. 3.02 per cent, 3.2 per cent, 3.2 per cent. E. L. PATCH.

GUM. Advertised as a superior product for tablet making and other pharmaceutical uses. Proved to be white potato dextrine. E. L. PATCH.

HEROIN. Variations in melting point of 10 to 15 degrees are found in *Heroin* and *Heroin Hydrochloride*. W. L. SCOVILLE.

HYDROGEN PEROXIDE. Thirty-two samples ranged in strength from 0.63 per cent to 3.49 per cent. Twenty-nine more were below 3 per cent, three less than 2 per cent, and two others less than 1 per cent. Solids ran as high as 0.366 per cent. Eighteen exceeded the limit for acidity. Twenty-four contained *Acetanilide*. N. A. R. D. NOTES.

HYOSCYAMUS. One sample of annual leaf assayed 0.023 per cent alkaloids. E. H. GANE. 0.057 per cent, 0.097 per cent, 0.118 per cent. E. L. PATCH.

INSECT POWDER. Stems are largely used for powdering and the claim is made that these are as active as the flowers. E. H. GANE. Considerable quantities of *Insect Flower* stems continue to arrive. It seems impossible that they could be used for any other purpose than that of substituting or adulterating insect flower powder. Our histological pharmacognosists have published such descriptions and illustrations of powders adulterated

in this way, that no one who has had even an elementary training in the use of the microscope should be at a loss to detect the fraud. H. H. RUSBY.

IPECAC. 2.4 per cent, 1.97 per cent, 2.26 per cent, 1.97 per cent, 2.4 per cent, 2.28 per cent, 2.33 per cent, 2.18 per cent, 2.43 per cent. E. L. PATCH.

IRON LACTATE. One sample was only partially soluble and contained much ferric lactate. E. H. GANE.

JABORANDI. 0.26 per cent, 0.165 per cent, 0.3, 0.2 per cent. E. L. PATCH.

JALAP. The poorest lot offered tested 6.75 per cent and the best 20.06 per cent resin. E. H. GANE.

Total resin 8.05%	Ether soluble 1.2 %
Total resin 11.85%	Ether soluble 1.1 %
Total resin 12.2 %	Ether soluble 1.35%
Total resin 9.78%	Ether soluble 1.18%
Total resin 7.4 %	Ether soluble 0.95%
Total resin 13.84%	Ether soluble 1.24%

E. L. PATCH.

KAMALA. Twelve samples—all free from starch—Ash 7.7, 6.4, 4.5, 6.5, 7.2, 15.7, 7.7, 18.2, 5.3, 24.6, 7.7, 5.2. C. B. WHEELER.

LEMON EXTRACT. Two lots were free from oil. Others 6 per cent upward. M. S. B.

LOBELIA HERB. 0.6 per cent alkaloid. E. L. PATCH.

MAGNESIA CALC. Magnesia labelled "For technical purposes only," but sent for medicinal use, assayed 92.2, 89.7, 86.6, 95.9 and 93.1 per cent respectively. E. H. GANE.

MAGNESIUM SULPHATE. Dried tested 95 per cent monohydrated. E. L. PATCH. The dried salt, if monohydrated, should contain 87 per cent of anhydrous salt, if dihydrated, 77 per cent. M. C. W. had 67.2 per cent anhydrous, 7.29 per cent water. P. W. R. 64.93 per cent anhydrous, 19.43 per cent water. Merck 54.27 per cent, 26.16 per cent water. W. A. PUCKNER AND L. A. WARREN.

METHYLENE BLUE. Contains 0.1 per cent to 1.0 per cent ash. Zinc is usually present. W. L. SCOVILLE.

MUSTARD. The presence of Charlock in Mustard used as a condiment is very common and frequently very excessive in amount. Provisions for its detection in both whole and powdered form should carefully be made in the pharmacopœia. H. H. RUSBY.

MYRRH. Is 30.1 per cent to 42 per cent soluble in alcohol. W. L. SCOVILLE.

NUX VOMICA. One lot of powdered assayed only 1.19 per cent Strychnine. E. H. GANE. 1.26 per cent, 1.22 per cent, 1.268 per cent, 1.23 per cent, 1.22 per cent. E. L. PATCH.

OIL ANISE. One lot of Manilla oil proved of excellent quality, giving the following results: Congealing point 15°C. Sp. gr. 0.975. Opt. rotation 0.25°. Soluble in all proportions in 90 per cent alcohol. E. H. GANE.

OIL CAJUPUT. Lots meeting other U. S. P. requirements are low in gravity, running 0.911 or under instead of 0.915 to 0.925. E. L. PATCH.

OIL CASSIA. Lots sold as redistilled gave

11 per cent residue and lots marked lead free, not redistilled, only 11.5 per cent residue. E. L. PATCH. Cassia Oil and Cinnamon Oil are not alike. The names should not be used interchangeably. Oil Cinnamon is distilled from scrap bark, and if pure, may contain 80 per cent to 90 per cent aldehyde. It is often adulterated with leaf oil. Oil of Cassia is distilled almost entirely from the leaves and contains from 75 per cent upward of aldehyde. Shipped in lead containers it often contains lead. AM. DRUGGIST.

OIL CITRONELLA. Frequently adulterated with turpentine and petroleum oil. AM. DRUGGIST.

OIL EUCALYPTUS. One sample offered contained only 40 per cent of Eucalyptol. E. H. GANE.

OIL FENNEL. Congealing point, +6°C., +3.5°C., +5°C., +5.50°C., +6°C., +6.5°C., -16°C., +3°C., +2.85°C. E. L. PATCH.

The requirements of +5°C. is generally agreed to be too severe. Manufacturers abroad tell us the freshly made oil will show as required but almost immediately begins to undergo a natural change, one indication of which is the dropping of the congealing point. This does not impair the quality of the oil. Our last importation was 5° when it left the factory, was 4.5° when it reached us, and has gone down further since. Our stock at different times has tested 2.5° upwards. The way the "pluggers" standardize this is by adding Oil of Anise having a congealing point of 15°C., an admixture defying detection by any ordinary means. DODGE AND OLCOTT.

OIL LINSEED. Is commonly extended with corn oil. Soya bean oil has been used, but to much less extent. E. H. GANE.

OLIVE OIL. Various samples were mixtures of Olive Oil and Cottonseed Oil or all Cottonseed. M. S. B.

OIL ORIGANUM. It is stated in N. A. R. D. Notes that no Oil of Origanum genuine is obtainable and Oil Red Thyme is offered instead. There are dealers who guarantee to furnish genuine Oil of Origanum distilled from Origanum vulgare. One such product had sp. gr. 0.910, was soluble in one-half volume of alcohol and one volume of 80 per cent alcohol, and gave 30 per cent phenols and would meet requirements for Oil Red Thyme. E. L. PATCH.

ORGANUM. The experiences this year with the different species of Origanum have been most interesting. It has been a revelation to me to find that there are quite a number of species of this genus which possess a strong odor and taste of thymol and which undoubtedly contain a considerable quantity of that substance. This renders them wholly unlike Origanum Majoranum and Origanum vulgare. The medicinal relations of these substitutes are almost nil, but they are considerably imported for use by our Italian citizens as a condiment, and are very frequently imported under the name of thyme. H. H. RUSBY.

OIL PEPPERMINT. Marked "Twice Rectified," "U. S. P.," "Redistilled." Not always colorless. One lot gave more than opalescence with four parts of 70 per cent Alcohol. Optical rotation -25.7° to -27.4° , Sp. gr. 0.9018 to 0.9045, Menthyl Acetate 7.08 to 7.86 per cent. Total menthol 55 to 60.3 per cent. E. L. PATCH.

OIL PINE NEEDLES. The market shows now few products which were described in the publications of ten years ago, and the name *Pinus sylvestris* is more misused than any other. There is practically no Oil of *Pinus sylvestris* on the market. The name is generally applied to such oils as the Siberian and Austrian oils. The Austrian oil is also sometimes known as Oil of *Pinus pumilio*. AM. DRUGGIST.

OIL RED THYME FLOWERS. Guaranteed to be genuine. Sp. gr. 0.888 (U. S. P. 0.9 to 0.930). Optical rotation -1.2° (U. S. P. up to 3°). Phenols 22.5 per cent. E. L. PATCH.

Sp. gr.	Opt. Rotation	Refractometer
1.0672	$+2.8^{\circ}$	
1.075	$+2.70^{\circ}$	1.5315 (20°C.)
1.071	$+2.30^{\circ}$	1.5302 (23°C.)
1.0654	$+2.5^{\circ}$	1.5262 (22°C.)
1.0574	$+3.3^{\circ}$	1.5234 (23°C.)

Last shipment returned, dealer's explanation:

"An inexperienced man overlooked the fact that Oil Sassafras solidifies in cold weather and drew from the top of a container, the contents of which were not thoroughly melted and mixed." E. L. PATCH.

PAW PAW. Paw paw preparations vary greatly in digestive activity. W. L. SCOVILLE.

PAPAIN—

Dry Beef Fibrin digested:

Neut. Sol. 21.8	Alk. Sol. 25.5
Neut. Sol. 8.6	Alk. Sol. 19.45
Neut. Sol. 21.6	Alk. Sol. 23.9
Neut. Sol. 13.5	Alk. Sol. 16.9
Neut. Sol. 12.	Alk. Sol. 17.6
Neut. Sol. 12.	Alk. Sol. 14.5
Neut. Sol. 10.3	Alk. Sol. 14.8
Neut. Sol. 19.5	Alk. Sol. 24.2

"Juice of Pawpaw":

Neut. Sol. 16.5	Alk. Sol. 20.
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E. L. PATCH.

PEPSIN. Samples on the market with digestive power of 1-9000, but they contain a large proportion of inorganic salts. Probably these salts are a large factor in the activity of the pepsin. W. L. SCOVILLE. Three lots labeled 1-6000 were 1-2000. One lot labeled 1-3000 was 1-1000. Several other lots were weaker than labeled. O. P. D. REPORTER.

PEROXIDE CREAMS. Of twenty-one brands only three contained hydrogen dioxide and in a majority of cases apparently no dioxide had ever been present. AM. DRUGGIST. The Peroxide Specialty Co., Cincinnati, were convicted and fined for shipping such a product. PHARM. ERA.

PETROLATUM WHITE. Sold under guarantee as U. S. P. All free from fats.

Color white, odorless, fusing point 30°C. ,

character, fairly transparent; white, odorless, 34° to 35°C. , fairly transparent; white, odorless, 38° , more translucent; white, odorless, 35° , fairly transparent; white, odorless, 42° , more translucent; bluish white, odorless, 36° , translucent; white, odorless, 33° , opaque. E. L. PATCH.

PETROLATUM LIQUIDUM. It is difficult to obtain meeting the U. S. P. requirements for sp. gr. of 0.870 to 0.940. A few lots run as follows: 0.860, 0.875, 0.876, 0.877, 0.861, 0.877. E. L. PATCH.

PHENACETIN. Melts at 131° to 135°C. W. L. SCOVILLE.

PILLS CATHARTIC COMPOUND. These and other black pills labeled gelatin coated were coated with lamp-black and glucose. Pills Cathartic Compound are being offered at wholesale below the bare cost of material. N. A. R. D. NOTES.

PINKROOT. Fifty-seven samples were obtained from various sections of the country and carefully examined, compared with four plants of true spigelia from the Bureau of Plant industry, cross sections of the rhizomes and roots being made and compared microscopically. Specimens found to be true pinkroot, none, although many were up to the U. S. P. description. C. E. SANDERS.

Podophyllin.	Alcohol insol.	Ash
	1.5	0.5
	1.2	0.5
	1.	0.5
	1.	0.4
	3.7	—
	0.8	0.5
	1.2	0.5
	11.8	—
	3.1	1.0

E. L. PATCH.

POTASSIUM CARBONATE. Usually contains 8 to 15% of water. Since the pharmacopœia directs that it is to be dried before being weighed for titration, salt containing as much as 15% of water is sold as U. S. P. W. L. SCOVILLE. 1 lot 0.7% Chloride—98% K_2CO_3 in well dried salt. Dirty. Makes dirty solution. No. 2 do. No. 3, 98.5% dirty. E. L. PATCH.

POTASSIUM—HIGHEST PURITY. Potassium Hydroxide runs 85% to 89 or 90% strength. W. L. SCOVILLE.

POTASSIUM NITRATE U. S. P. Conviction and fine for shipping ten bbls. containing 7% Sodium Chloride. U. S. P. should be 99% pure. APOTHECARY.

PRECIPITATED FERROUS PHOSPHATE. Dispersatory states that it may assay 44% ferrous phosphate. Five lots carefully made assayed 63.5%, 65.95%, 69.74%, 71%, 80.34%, 86.8%. Other lots in market, 42.34%, 45%, 49.98%, 44% $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$. E. L. PATCH.

RHUBARB. American rhubarb has been offered to the trade. The root is of a poor, grayish color, very spongy and with little if any of the characteristic rhubarb odor. Microscopically its structure is similar to the imported but it is distinguished by the small amount of Calcium oxalate crystals present. The powder is of a fair color. E. H. GANE.

SAFFRON—VALENCIA. Five years ago it was almost impossible to encounter an importation of this drug which was genuine and of proper quality. Numerous substances other than Saffron were doctored up so as to resemble it. Petals and stamens of saffron flowers were included with the stigmas, frequently to the extent of 25% or more. Genuine saffron was coated and weighted with heavy adulterants, or was soaked in oil to increase its weight. An excessive amount of moisture was frequently present. In view of the very great value of this article commercially, the money loss entailed in these ways in the course of the year reached an enormous figure. It is safe to say that at the present time it is as rare an occurrence to see an importation of saffron that is defective in any way as it used to be to see a perfect one. I think the money saving in this one article alone will more than pay the entire costs of the enforcement of the Pure Food and Drug Law at the Port of New York. H. H. RUSBY.

SALVIA. It is apparent that much of the "Sage" that is imported, especially around Thanksgiving time, consists of the *Salvia Triloba* and other very similar species. These all have an odor and flavor closely resembling those of the official article though differing considerably in strength. It may be that they are mere varieties of *Salvia officinalis* and might properly be officially included with it. Nevertheless, the question should be thoroughly studied and the proper status of these substitutes be definitely fixed. H. H. RUSBY.

SCAMMONY. One sample offered only contained 28.6% resin and was largely adulterated with wheat flour. E. H. GANE. It has been boldly claimed, by those who ought to know better, that practically all the scammony on the market is extracted from the dried root of the false or Mexican scammony. While it is true that most of the scammony on the market, perhaps one should say practically all of it, violates the U. S. P. requirements in having been extracted from the dried instead of the living root of Scammony, the amount of that coming from Mexican scammony, although large, does not predominate. H. H. RUSBY.

SENA. The sale of broken senna as "Senna U. S. P." has been very properly authorized by the government, but that of senna siftings, containing large amounts of sand and other foreign matter, has caused great trouble. Here again the efforts of the Federal Government are doubtless neutralized in most cases by the neglect of the states to carry out the taboo. H. H. RUSBY.

SILVER NITRATE AMPULS. Material-celluloid. Claim 1% solution-permanent-convenient. Used for dropping in eyes of new-born babies. 12-10-1910—Assayed $1\frac{1}{4}\%$. No trace of oxidation. Walls of ampuls average 1-200 inch in thickness. Solution may have grown stronger by evaporation.

	Five ampuls weighed	2.457 Gm.
1-11-1911	Five "	2.080 "
	Loss in one month	.377

About .075 G. for each ampul. No oxidation. Strength of solution 1.85%.

2-17-1911 5 ampuls weighed 1.593 G.

Loss since 1-11-1911 .485 G

About .097 G. for each ampul. Some show marked reduction. Solution from all five ampuls, mixed, assayed 2.76%. As a two percent solution is dangerous this solution of 2.76% should not be used. E. L. PATCH.

SOAP. Soap Castile. The powdered contains 2.5 to 5% of water. The cake 11 to 26%. Much offered as castile soap is made from animal fats. W. L. SCOVILLE. Much of the so-called "Pure Olive Oil Soap" contains a large proportion of coconut oil soap. This is easily recognized by the characteristic taste. E. H. GANE.

SODA—CAUSTIC. Runs from 88% to 98.6%. W. L. SCOVILLE.

SODIUM CARBONATE. Varies greatly in the amount of water which it contains. W. L. SCOVILLE.

SODIUM GLYCEROPHOSPHATE. Is often alkaline in reaction to a very marked extent. Enough to give trouble in preparations containing it. W. L. SCOVILLE.

SODIUM PHOSPHATE. Dried, Purified No. 1. Contained 10% sulphate, 1.5% water. U. S. P. No. 2. Contained excess of sulphate and chloride. 0.5 water. E. L. PATCH.

SODIUM SULPHATE. Dried. Tests satisfactory—nearly anhydrous. E. L. PATCH.

SODIUM SULPHITE. Dried.

No. 1 100 parts=188 crystalline—tests O. K.

No. 2 100 parts=189 crystalline—tests O. K.

No. 3 Tests 99% 0.26 chloride—No. 4—98%—0.38 chloride.

No. 5 Too dirty to use. E. L. PATCH.

STRAMONIUM. Two lots of domestic assayed 0.17 and 0.14% alkaloids. E. H. GANE. 0.198%, 0.21%, 0.41%, 0.28%. E. L. PATCH.

TRAGACANTH. Has been a bone of fierce contention during the year; two fraudulent practices, which must be separately discussed, having been commonly indulged in, namely, the sale of India gum in place of or mixed with Tragacanth, and the sale of a grade of Tragacanth which does not meet the official standard. India gum is any gum, of either an *Acacia* or *Tragacanth* type, collected in India. The varieties are numerous and of very variable character. All of the *Tragacanth* type are more or less dark colored with adhering fragments of bark. All are deficient in adhesiveness and other properties of *Tragacanth*, one having no adhesive power whatever. They are very cheap and their substitution has been a very highly profitable form of fraud. All possess important uses in the arts, and their exclusion, when truly named, is entirely unjustifiable. All too, may lose their true names and go into use as *Tragacanth*, the states paying not the slightest attention to the fraud. The description of the pharmacopœia is ample to distinguish the article in the entire state, but useless when it is powdered. Since the law says that articles must conform to the standards of the pharmacopœia as determined by the tests laid down therein, an opportunity exists for sub-

stitution, even though tests not included in the pharmacopœia may be conclusive, as in fact they are. In the Federal District of New York the procedure of the courts has mostly been such as to result in the high encouragement of the violators of the Food and Drugs Act. Although there have been some commendable exceptions, there has also been much seen of the evil of false testimony of experts. In one case the importer admitted to the Federal authorities that his Tragacanth contained a large admixture of India gum, but afterwards decided to contest the case. He had not the slightest difficulty in finding experts willing to swear that they had applied the tests and found the article pure. The tests then being applied in court, one of the witnesses who was present refrained from looking on, explaining after the trial that he might be compelled to testify to what he saw if he looked at the tests, which would invalidate his previous testimony. There is a manifest serious weakness in the law that makes no provision for the evidence of tests discovered in the intervals between the publications of the pharmacopœia. Moreover, now that the pharmacopœia is the legal standard, it must be far more careful of both the accuracy and sufficiency of its tests than it has heretofore been. Concerning the supply of a lower grade of genuine Tragacanth than the pharmacopœia specifies I am compelled to express my sympathy with the offenders, except as to the technical matter of violating the law. The restriction of the U. S. P. to a number one Tragacanth (and the same is true of Acacia) would seem to be purely fanciful and uneconomical. A second, third and even fourth grade of these gums, when powdered, can scarcely be distinguished from a number one, certainly not unless a number one sample is placed beside it for comparison. The writer is not convinced that any medicinal or pharmaceutical use for a number one Acacia or Tragacanth cannot be satisfactorily met by one of the other grades mentioned. This opinion, being firmly held by dealers and users makes it extremely difficult to prevent them from substituting such grades and this is certain to be done after powdering, since detection is then impossible. H. H. RUSBY.

TRITICUM. A single shipment of a grass rhizome somewhat resembling Triticum, but totally distinct therefrom, has been offered and rejected under this name. H. H. RUSBY.

TURPENTINE. Adulterated with copal. Several severe inflammations of the hands and face have resulted. To identify the copal the liquid is distilled up to 190° C. and the acid and bromine members of the residue determined. PHARM. ERA.

UMBELIFEROUS CREMOCARPS. Caraway, Anise, Fennel, etc., etc. This class of official fruits is extremely liable to contamination with large amounts of stems, gravel, sand, dust, weed seeds and other impurities, but the indications of quality thus resulting are very deceptive. Sometimes the appearance of foreign tissue will be such as to give the

impression of an article of very low grade, yet separation of the light chaff and stem fragments will show the percentage of the latter to be insignificant, while at other times a very fair looking article will be found to contain a serious admixture of heavy and perhaps inert impurities. H. H. RUSBY.

UVA URSI. The production of cut stems to this drug in the same way as described in connection with Long Buchu, seems to have nearly ceased, a result apparently of the persistent rejection of the article when so treated. H. H. RUSBY.

ZINC OXIDE. Difficult to obtain strictly U. S. P. The usual impurities are lead, antimony and iron in excess. Seven lots offered as U. S. P. assayed 96.4%, 98.14%, 99.09%, 96.1%, 95.8%, 97.2% and 95.3% Zinc. E. H. GANE.

For the Committee:

EDGAR L. PATCH.
E. H. GANE.
H. H. RUSBY.
W. L. SCOVILLE.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 368)

The first two formulas belong to the lubricating jellies submitted in the April JOURNAL A. PH. A.

The other formulas are for preparations of "scarlet red" in the form of ointments and dusting powders. As these preparations are frequently ordered by physicians the writer deemed it advisable to include various formulas given by authorities for the enlightenment of the pharmacists and their physician friends.

The members are requested to submit formulas and also send comments on those already published.

Respectfully submitted,
OTTO RAUBENHEIMER, Chairman.



ABBREVIATIONS

used in Department of *Pharmaceutical Formulas*, and in Department of *Synonyms*.

Am. Dis.—American Dispensatory.
Anvers—Formulaire de la Société de Pharmacie d'Anvers.
Aust. Pharmacopœia Austriaca.
Belg.—Pharmacopœia Belgica.
B. P.—British Pharmacopœia.

- B. P. C.—British Pharmaceutical Codex.
 Buch.—Buchheister's Vorschriftenbuch.
 Can.—Canadian Formulary.
 Codex—Codex Française.
 D. A-B—Deutsches Arzneibuch.
 D. M.—Dieterich's Manual.
 Dorv.—Dorvault L'Officiene.
 D. Ap. V.—Deutscher Apotheker Verein.
 Dresd. Ap. V.—Dresdener Apotheker Verein.
 Hess. Ap. V.—Hessischer Apotheker Verein.
 Lux. Ap. V.—Luxemburg Apotheker Verein.
 Munch. Ap. V.—Münchener Apotheker Verein.
 E. B.—Ergänzungsbuch.
 F. B.—Formulæ Magistrales Berolinenses.
 F. P. F.—Formulaire des Pharmaciens Français.
 Hag.—Hager's Pharmazeutische Praxis.
 Hag. E.—Hager's Ergänzungsbund.
 Hell—Hell's Manual.
 Helv.—Pharmacopœa Helvetica.
 Ital.—Farmacopœa Italiana.
 Mar.—Martindale Extra Pharmacopœia.
 Med.—Medicamenta (Milano).
 N. Dis.—National Dispensatory.
 N. F.—National Formulary.
 Orosi—Farmacologia Italiana.
 P. I.—Præscriptiones Internationales.
 Ph. F.—Pharmaceutical Formulas (London).
 P. J. F.—Pharmaceutical Journal Formulary.
 Proc.—Proceedings A. Ph. A.
 U. S. Dis.—U. S. Dispensatory.
 U. S. P.—U. S. Pharmacopœia.

<>

Formulas No. 1 to 22 are found in February JOURNAL, p. 169-173.

Formulas No. 23 to 30 are found in April JOURNAL, p. 366-368.

<>

No. 31.

CHONDRUS LUBRICATING JELLY.

Department of Health, N. Y. City.

Solution of Formaldehyde.... 80 minims
 Boric Acid..... 16 oz. av.
 Irish Moss..... 12 oz. av.
 Distilled Water, a sufficient quantity

To make 5 Gall.

Wash the cut Irish Moss, put it together with the Boric Acid in about 4 gallons of Distilled Water on a water bath and boil for about 3 hours. When cool decant from the

sediment and add the Solution of Formaldehyde and sufficient Distilled Water.

Submitted by Dr. M. Hirschman, chemist of drug laboratory, Willard Parker Hospital.

<>

No. 32.

CHONDRUS LUBRICANT.

In the opinion of the Chairman the official *Mucilago Chondri N. F.*, together with antiseptics and perhaps a little glycerin, will produce an excellent lubricating jelly. Experiments along these lines are invited and comments are requested.

<>

"SCARLET RED" FORMULAS.

Scarlet red, or "Scharlach Rot," was originally used as an aniline dye and also as a microscopical stain. In 1906, B. Fischer (Münch. Med. Wochschr.) found that it also exercises a favorable action on the growth of epithelium, and a number of other investigators have since confirmed his results and also found other applications and uses for the dye.

In ordering "scarlet red" care must be used to specify the "medicinal" kind, which chemically is "amidoazotoluol-azobetanaphthol" and which has a different constitution than the regular aniline dye "scarlet red." Medicinal scarlet red is a dark brownish-red bulky powder with a melting point of 185° C., insoluble in water, slightly soluble in cold alcohol, acetone, ether and benzol, but soluble upon boiling. It is soluble in chloroform (1:15), also soluble in fixed oils and fats, but not readily soluble in petrolatum or paraffin.

Scarlet red is generally applied in the form of an 8 percent ointment. As various authorities have recommended different vehicles, the following formulas are submitted for

No. 33.

OINTMENT OF SCARLET RED. KRAJCA'S FORMULA.

Scarlet Red 8 gm.
 Chloroform Oil, a sufficient quantity,
 Yellow Petrolatum, a sufficient quantity

To make 100 gm.

Triturate the Scarlet Red with sufficient Chloroform Oil (see Formula No. 41) until very finely suspended and until the Chloroform is evaporated and then incorporate with the Petrolatum.

No. 34.

MCDONAGH'S FORMULA.

Dissolve the Scarlet Red in Chloroform and Mix it with the Petrolatum.

Lancet.

(As 15 parts of Chloroform are required to dissolve 1 part of Scarlet Red and as undoubtedly the Chloroform has to be evaporated, although this is not stated, therefore this seems a wasteful process.—O. R.)

<>

No. 35.

REINHARDT'S FORMULA.

He claims that it is unnecessary to use Chloroform or Chloroform Oil, as an excellent ointment can be obtained by triturating the Scarlet Red with the Petrolatum, previously warmed.

<>

No. 36.

BRUHN'S FORMULA.

Scarlet Red 5 to 10 gm.

Lanolin (No. 3)

Paraffin Ointment (No. 6),

equal parts of each

To make.... 100 gm.

<>

No. 37.

FORMULA OF GERMAN HOSPITAL.

Philadelphia, Pa.

Scarlet Red 8 gm.

Castor Oil 10 gm.

Petrolatum, a sufficient quantity

To make 100 gm.

Submitted by J. K. Thum.

<>

UNG AMIDOAZOTOLUOLIS CUM ZINCI OXIDO.

Ointment of Scarlet Red with Zinc Oxide.

German Hospital Philadelphia.

Scarlet Red 8 gm.

Castor Oil 10 gm.

Ointment of Zinc Oxide, a sufficient quantity

To make 100 gm.

Submitted by J. K. Thum.

<>

No. 38.

APPLICATION OF SCARLET RED OINTMENT.

When applied to ulcers the ointment may be spread on gauze and covered by a bandage,

the skin around the ulcer being covered with ointment of Zinc Oxide to avoid irritation. The dressing should not remain longer than 24 hours, the wound then being carefully cleaned before a fresh application. Should irritation occur, then a dressing of boric acid ointment should be substituted for 1 or 2 days, after which a weaker ointment of Scarlet Red may be applied.

<>

SCARLET RED DUSTING POWDER.

In place of the Ointment which frequently produces irritation and eczema, some authorities have recommended "dusting powders," also called

Pulvis Adustum, or

Pulvis Inspersorius

cum Amidoazotoluolo.

<>

No. 39.

FORMULA OF VITTORIO PAVIA.

Scarlet Red 10 gm.

Boric Acid, in very fine powder 90 gm

To make 100 gm.

Therap. d. Gegenw., 1911, p. 47.

No. 40.

FORMULA OF PAUL MICHAELIS

Scarlet Red 10 gm.

Zinc Peroxide 20 gm.

Bismuth Subnitrate 70 gm.

To make 100 gm.

Med. Klinik., 1911, p. 139.

It is, of course, absolutely essential that these preparations are well mixed and sifted, in an extremely fine powder, free from gritty particles. They are best applied by means of an insufflator.

<>

No. 41.

OLEUM CHLOROFORMI.

Chloroform Oil—Chloroformöl.

D. A.-B. V.

Chloroform 1 part

Peanut Oil 1 part

Chloroform Oil is clear, yellow and has the odor of chloroform. When heated in a shallow porcelain evaporating dish on a water-bath for half an hour it loses one-half its weight.

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As long as the supply lasts, complete sets of the Bulletin, 6 vols. (except Jan., 1910,) will be supplied to dues paid members who request them.

These on binding, which should cost not to exceed 60 cents per volume, will form a handsome and valuable addition to any pharmaceutical library. In the future complete sets of the Bulletin will be scarce and valuable, and those who want them should apply now.

Members will be expected to pay freight or express, which, however, will be only a small amount.

The General Secretary is also prepared to send dues paid members, without charge, reprints of Dr. S. S. Cohen's address on the *Relation of the Pharmacopoeia to the Practice of Medicine*, an admirable aid in propaganda work with physicians.



THE SIXTIETH ANNUAL CON- VENTION.

It was expected that this number of the JOURNAL would contain more or less information concerning itinerary and rates to Denver

from the eastern cities, but up to the time of going to press copy for this had not come to hand. Enough is known, however, to say that the Denver people are hard at work in the endeavor to make the meeting one of the most successful ever held in that city.

The date, August 19, is at the season when a trip to the mountains is most delightful, and the time when druggists can most easily leave their stores.

Don't fail to set aside this date now, and to keep it free from all interfering engagements.

It will be a grand opportunity for a visit to the "Heart of the Rockies."

WHY PHYSICIANS SHOULD PRESCRIBE U. S. P. AND N. F. PREPARATIONS.

At the "joint" meeting of the New York Branch of the A. Ph. A., the Brooklyn Pharmaceutical Association and physicians of Brooklyn, held on March 25, 1912, Otto Raubenheimer gave the following arguments:

"Inasmuch as the N. F., an authoritative book of standard preparations, legalized by the Pure Food and Drugs Act, is published by the A. Ph. A., the professional association of pharmacists in the United States, and is prepared by experts who, unselfishly, not only compile the formulas but also improve the preparations so as to be of the highest type, both pharmaceutically and therapeutically.

"And inasmuch as the U. S. P., the legal standard in all the states, is carefully and scientifically revised by a committee, composed of physicians, pharmacists and chemists, elected by the Convention and which committee performs this very important work practically without any compensation.

"Therefore, it is but reasonable to expect that physicians should show their appreciation by prescribing the standard, legal and official preparations of the U. S. P. and N. F. in preference to proprietary preparations which are secret or semi-secret and which are frequently changed at the will of their owners."

DR WILEY'S PROBABLE SUCCESSOR.

The size and quality of a man is sometimes better appreciated when it becomes necessary to fill his place than before he vacated

it, an illustration of which is seen in the canvass for a suitable successor to Dr. H. W. Wiley as Chief of the Bureau of Chemistry.

One of the first names proposed was that of Prof. Frederick J. Wulling, well known to the drug trade owing to his office as Dean of the School of Pharmacy of the University of Minnesota. Prof. Wulling is not only a pharmaceutical chemist of ability, but has the added advantage of being a graduate in law, and these with his other personal qualities splendidly equip him for the proposed position.

Another pharmacist who has been prominently mentioned is Prof. Eugene G. Eberle, Dean of the School of Pharmacy at Dallas, Tex., and Editor of the *Southern Pharmaceutical Journal*. He was President of the A. Ph. A. last year, and has always been active in the advocacy of effective food and drug laws, and of laws restricting the traffic in habit-forming drugs. Prof. Eberle is a man of safe and sane, yet of progressive type, and would make an excellent official.

Among the non-pharmacist candidates several excellent possibilities have been presented.

One of these is H. E. Barnard, B. S., Food and Drug Commissioner of Indiana, who is said to be a favorite with the druggists of that state on account of his activity in the Indiana State Pharmaceutical Association, and in other ways. His ability as a food and drug chemist, and his zeal for a rigid enforcement of the food and drug laws are beyond question.

Another state official who has been strongly endorsed is Prof. E. F. Ladd, Food Commissioner of North Dakota, who has been the terror of the food and drug sophisticators of that state. He is well known among food and drug chemists because of his excellent work in establishing analytical standards for various products, and as the author of numerous valuable and practical papers relating to food and drug chemistry.

Dr. R. E. Doolittle, of the present Board of Food and Drug Inspection, also prominent among those mentioned, has the advantage of having behind him the experience of several years in the administration of the Federal law, and of the internal workings of the Bureau of Chemistry, and would consequently be able to assume the vacant position without occasioning a halt in the work of the Bureau. Those who know Dr. Doolittle per-

sonally speak highly of his character and capacity.

Another whose name has been strongly urged is W. D. Bigelow, Chief of the Division of Foods of the Bureau of Chemistry. Dr. Bigelow stands second to none in his branch of chemistry, is a man of clean, strong character, and in earnest sympathy with an honest and impartial enforcement of the law. His appointment would be well received by the drug trade generally.

Other candidates have been proposed from various states, all of them apparently worthy and well qualified, though the writer is not sufficiently acquainted with them or with their respective merits to make personal mention of each.

It would, of course, be mere affectation for the Editor of the JOURNAL to pretend ignorance of the fact that his name has been mentioned in the list of "favorite sons," but he takes this opportunity to say that this mention has been without his connivance, contrivance, aid or sympathy. He is not conscious of any internal yearning to occupy the chair now vacant, and while grateful to the friends who have thought of him in this connection, trusts that they will support one or another of the several excellent gentlemen named above.

Communications and Correspondence

All communications must be signed by their Authors

BULLETIN NO. 1 OF THE COMMITTEE ON COMMERCIAL INTERESTS.

The Commercial Section of our grand Association is by no means the one of least importance and the splendid work accomplished by the predecessors of this Committee has borne good fruit.

It is the desire of this Committee to make the meetings of this section at our meeting in Denver of unusual interest and of lasting benefit to the membership of our Association and with this in view, we hereby solicit papers and information pertaining to the Commercial Interests of the Pharmacist.

With a view to stimulating and inspiring members of the A. Ph. A. to greater efforts, the Chairman of this Section offers a first and second prize—consisting each of a box of Havanas—to be awarded to the member of our Association who sends in the first paper, and the second prize to the one sending in the fifth paper. The prizes will be awarded at our Denver meeting. Mail papers direct to the Secretary, who will act as judge.

Looking forward to a splendid lot of papers, we remain,

Fraternally yours,

E. BERGER, Chairman.

D. W. RAMSAUR, Secretary.

Palatka, Fla.

<>

COMMITTEE ON PRACTICAL PHARMACY AND DISPENSING.

(Bulletin No. 2)

The votaries of pharmacy in large numbers will convene in the city of Denver in August, and the local committee has already given us assurance of a most royal entertainment. The meeting, however, to be wholly successful must depend chiefly on the individual contributions of its members—on the quality and quantity of the papers presented for discussion at its sessions.

Heretofore, of the entire membership of the Association only about one per cent. have favored us with papers. Surely some among the ninety and nine per cent. of delinquents can furnish some data or an original contribution on some topic germane to the science or art of pharmacy for this occasion. Particularly do we invite our friends in the Government service—who have recently recruited in large numbers to our ranks—to give us the benefit of some of their experiences in the preparation and manufacture of pharmaceutical products and galenicals.

The general excellence and high character of the contributions to pharmacy of our fellow-workers in the past have gone a long way toward establishing the fame and prestige of our worthy association. Let each one therefore who has her continued welfare at heart lend a hand in this unselfish work for the uplifting and advancement of the profession in which we as co-workers are engaged.

Fraternally yours,

P. HENRY UTECH, Chairman.

J. LEON LASCOFF, Secretary.

SUGGESTION CONCERNING COMPOUND SOLUTION OF CRESOL.

CHICAGO, ILL., April 18, 1912.

Editor of the JOURNAL:

Some time ago I made a recommendation through Prof. Clark to the Revision Committee of the Pharmacopœia for a change in the mode of making Liquor Cresolis Co.—a change which I believe to be important to the retail drug trade, as it simplifies the process of making the above preparation; it is, to use equal parts by weight of Cresol and Sapo Mollis.

By this method one is sure of perfect saponification, and therefore clear solutions thereafter, when dilutions are made. Whereas, by the present process this is not always the case, owing perhaps to variation in quality of oil used, and to the degree of freshness or mode of keeping. Many pharmacists will not bother with the present method who would be glad to avail themselves of the above formulas.

Yours sincerely,

WM. GRAY, Pharmacist.

Council Business

COUNCIL LETTER NO. 16.

PHILADELPHIA, March 27, 1912.

Members of the Council:

Chairman Eberle, acting under *Motion No. 31 (C. L. No. 14, 31)*, has appointed the following "Committee on Co-operation in Pharmaceutical Legislation"

W. S. Richardson, Chairman, H. P. Hynson and J. H. Beal.

Motion No. 32 (Appropriation of \$100 to Committee on National Legislation) has received a majority of affirmative votes.

No hearing has yet been held by the Committee on Interstate and Foreign Commerce upon the subject of the Richardson Amendment to Sections Nos. 6, 7 and 8 of the Food and Drugs Act. (H. R. 14060.)

Motion No. 33 (Donation of Set of Proceedings of A. Ph. A. to N. A. R. D.). Moved by J. H. Beal, seconded by H. M. Whelpley, that the Association present a set of its Proceedings, as nearly complete as can be made from stock in hand, to the National Association of Retail Druggists.

Motion No. 34 (Election of Members). You

are requested to vote on the following applications for membership

No. 164. Leon H. Marr, 62 Main St., Farmington, Maine, rec. by Chas. H. Davis and W. F. Jackson.

No. 165. Carl B. Kober, 37 Logan St., Denver, Col., rec. by F. W. Nitardy and John A. Martin.

No. 166. Benjamin Franklin Seymour, 60 Jacobson Bldg., Denver, Colo., rec. by F. W. Nitardy and John A. Martin.

No. 167. Robert James Douglass, Sergeant Hospital Corps, U. S. A., Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and J. H. Beal.

No. 168. James Baillie, 1887 Rondo St., St. Paul, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 169. Justin Sewall Brewer, care Minneapolis Drug Co., Minneapolis, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 170. Thomas Biscoe, St. Paul Park, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 171. William Loesch, 3040 Wentworth Ave., Chicago, Ill., rec. by Wm. B. Day and A. H. Clark.

No. 172. William H. Thomas, Sergt. 1st Class, H. C., Regan Barracks, Ahoy, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 173. Emmett Powers, 2809 Eaton St., Edgewater, Col., rec. by F. W. Nitardy and John A. Martin.

No. 174. Francisco Remirez, 498 Jesus del Monte, Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 175. Albert Logan Herbster, 229 National St., Elgin, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 176. William Kerr Lyda, Sergeant 1st Class, H. C., U. S. A., Fort Gibbon, Alaska, rec. by Wm. B. Day and Elmo D. Mathews.

No. 177. Matt Robert Noreen, Sergeant, H. C., U. S. A., Fort Gibbon, Tanana, Alaska, rec. by Elmo D. Mathews and Wm. B. Day.

No. 178. Herbert W. Snow, 220 N. Franklin St., Chicago, Ill., rec. by Jas. H. Wells and C. H. Avery.

No. 179. Clifford H. Bollinger, care Noyes Brothers & Cutler, Saint Paul, Minn., rec. by W. A. Frost and F. A. Upsher Smith.

No. 180. Glenn D. Thomas, Greenfield, Iowa, rec. by Wm. Mittelbach and C. E. Zinn.

No. 181. William Henry McNeill, River and Straight Sts., Paterson, N. J., rec. by J. H. Beal and W. Pitt Rich.

No. 182. Charles Samuel Cook, Bolivar, Tenn., rec. by Wm. R. White and J. O. Burge.

No. 183. Joy L. Miller, 340 Downey Ave., Indianapolis, Ind., rec. by Frank A. Hereth and A. D. Thorburn.

No. 184. Hiram Carney Parker, Sergeant Hospital Corps, U. S. A., Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and George H. Paul.

No. 185. Heber Wilkinson Youngken, 6106 Gray Ave., West Philadelphia, Pa., rec. by Christopher Koch and I. V. Stanley Stanislaus.

No. 186. Fred Louis Carter, Jr., 20 Merri-

mac St., Boston, Mass., rec. by John G. Godding and C. Herbert Packard.

No. 187. Aaron Gard Burnette, 326 Missouri Ave., East St. Louis, Ill., rec. by J. W. Mackelden and H. M. Whelpley.

No. 188. William Hamilton Lamont, 11 S. 4th St., care Eli Lilly & Co., St. Louis, Mo., rec. by J. H. Beal and H. M. Whelpley.

No. 189. Charles S. Gutzeit, 630 Tasker St., Philadelphia, Pa., rec. by John R. Minehart and Ambrose Hunsberger.

No. 190. Arthur Charles Schulte, 300 S. Jefferson Ave., St. Louis, Mo., rec. by J. H. Beal and H. M. Whelpley.

No. 191. Marcus Barrett, 233 St. Luke St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 192. Benjamin Roessner, 509 N. 2d St., Philadelphia, Pa., rec. by E. Fullerton Cook and I. W. Osterlund.

No. 193. William Nicholas Robak, Main and First Sts., Conemaugh, Pa., rec. by J. A. Koch and A. F. Judd.

No. 194. Henry P. Sandkoetter, 50 W. Harrison St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

J. W. ENGLAND,

Secretary of the Council.



COUNCIL LETTER NO. 17.

PHILADELPHIA, April 9, 1912.

Members of the Council:

Motion No. 33 (Donation of Set of Proceedings of A. Ph. A. to N. A. R. D.), and Motion No. 34 (Election of Applicants for Membership from Nos. 164 to 194 inclusive) have each received a majority of affirmative votes.

The following communication has been received

"To the Council of the American Pharmaceutical Association:

We, the undersigned members and proposed members of the American Pharmaceutical Association respectfully petition the Council for a permit to establish a local Branch to be known as the Saint Louis Branch of the American Pharmaceutical Association.

At the meeting held on March 22, 1912, a Constitution and By-Laws was adopted, copy of which find attached, and the following officers elected: Wm. K. Ihardt, President; Jerry A. Wilkerson, First Vice President; Arthur C. Schulte, Second Vice President; William H. Lamont, Secretary; Carl T. Buchler, Treasurer; N. Emery Williams, Louis Lieberstein, Delta E. Combs, Advisory Board:

L. G. Blakeslee, S. Boehm, C. T. Buehler, A. G. Burnett, Chas. E. Caspari, G. W. Collins, D. E. Combs, Miss B. P. Coussens, Chas. Gietner, J. M. Good, F. A. Haines, Francis Hemm, Wm. A. Hickey, Mrs. B. G. Huffman, Wm. K. Ihardt, L. J. Lehmann, Wm. H. Lamont, L. Lieberstein, G. S. Lohmann, J. W. Mackelden, M. J. Noll, F. C. Pauley, J. W. S'Renco, E. A. Sennewald, A. Schulte, C. R. Sizemore, F. W. Sultan, L. R. Suppan, Wm.

H. Tabacnic, L. R. Tyson, F. G. Uhlich, John Wasem, H. M. Whelpley, J. A. Wilkerson, N. Emery Williams, Wm. P. Overstreet.

Saint Louis, Missouri, March 25, 1912."

Do you approve of the above application for the formation of the Saint Louis Branch of the American Pharmaceutical Association? This will be known as *Motion No. 33 (Application for Formation of the Saint Louis Branch, A. Ph. A.)*.

There was submitted, also, a Constitution and By-laws for the Branch, but as this is quite lengthy, it will be published in the JOURNAL.

J. W. ENGLAND,

Secretary of the Council.



COUNCIL LETTER NO. 18.

PHILADELPHIA, April 13, 1912.

Members of the Council:

The following is submitted:

"PHILADELPHIA, Pa., April 13, 1912.

Members of the Council:

Since the Boston (1911) meeting of the American Pharmaceutical Association the new JOURNAL has been issued along the lines laid down by the Association.

The details of publication have been very carefully considered by the Committee on Publication.

The number of reading pages in each issue has been left to the judgment of the Editor. Four issues have been sent out containing 90, 104, 86 and 120 pages, respectively.

The monthly date of publication has been made "about the fifth of each month."

It has been decided not to copyright the JOURNAL, at least for the present, unless exigencies require it.

Advertising rates were adopted by the Committee on Publication and these have been satisfactory to advertisers. It is most pleasing to state that the contracts placed have been much larger than was thought probable at the Boston meeting of the Association. A detailed report on this subject will be made at the Denver (1912) meeting.

Rules of Censorship have been adopted (see JOURNAL A. PH. A.) and a Committee on Censorship of three appointed, consisting of the Editor, the Treasurer and the Chairman of Committee on Publication.

The best and most satisfactory bid for printing the JOURNAL was that of the Stone-man Press Company, of Columbus, Ohio, and the contract for 1912 was awarded to this firm. A full report will be made at the Denver (1912) meeting.

It has been decided to furnish reprints of articles in the JOURNAL to authors at cost.

At the Boston (1911) meeting of the Association the following by-laws were adopted:

CHAPTER VI, ARTICLE IV.

"The Report on the Progress of Pharmacy shall be edited, published and distributed under rules and regulations approved by the

Council. It shall be issued as a yearly volume covering each fiscal year of the Association."

The title of this "yearly volume" has been the subject of considerable discussion by the Committee. It was felt that as the volume was to contain not only the Report on the Progress of Pharmacy, but also additional matter, such as Constitution and By-Laws, Geographical Roll and Alphabetical List of Members, Officers and Committees, General Rules, etc. (as required by Chapter VII, Article IX of By-Laws), the title of Report on the Progress of Pharmacy would be incorrect, and hence it has been decided to call the volume "Year Book of the American Pharmaceutical Association." This can be contracted into "Year Book, A. Ph. A." in contradistinction to "Year Book, B. P. C." (issued by the British Pharmaceutical Conference). It was felt that such a title would be most appropriate. It is true that we have a British "Year Book," but we have also a British Pharmacopœia, and the U. S. P. and B. P. do not conflict.

The title page in the Year Book will state the fact that the volume contains the "Report on the Progress of Pharmacy" and other official data, including "Rules of Finance." The authority for inserting this latter is to be found in Chapter VII, Article X of the By-Laws, under the clause "and such other matter as may be deemed desirable." The Council has the authority to insert any matter it wishes in the annual volume.

It will be recalled by the members of the Council that the Druggists' Circular (C. L. No. 14) requested permission "to publish a commentary on the various formulas contained in the work N. F., somewhat as the authors of the dispensatories have published comments on the text of the Pharmacopœia, and to quote extensively from the book," and this request was referred to the Committee on Publication.

The Committee on Publication feels that any decision upon this request will establish a precedent, and that it will be better to have the question discussed by the Council in actual session at the Denver (1912) meeting, and so recommends.

The details of the publication of the Year Book and the National Formulary have not been considered, because the manuscript for these two volumes has not been completed.

Under date of January 3, 1912, Reporter Dichl wrote that it was impossible to name a date when the manuscript for the annual volume would be ready for the printer, but indicated that it might be ready some time in April, 1912.

With regard to the National Formulary, it is very important that the subject-matter of this book be given the most careful consideration by the members of the Committee on National Formulary. The latter are framing legal standards, and should not call their labors completed until they have thoroughly satisfied themselves that every formula submitted is entirely practicable, and that the book will meet every legal requirement. This

means delay, but it is hoped that the work will soon crystallize, and that it will be possible to publish the Year Book and the National Formulary within a reasonable early period.

If any discrimination has to be made, it would seem to be more important that the Year Book be hastened to completion than the National Formulary. A Year Book should be issued somewhere near about the year the date of which it bears. At the least calculation, it will take three months to get it through the press and delivered after the perfect manuscript is received, which will bring the 1911 book out late in 1912.

J. W. ENGLAND,
Chairman of Committee on Publication."

Do you approve above report and recommendations contained therein? This motion will be regarded as *Motion No. 36 (Approval of Report of Committee on Publication)*.

J. W. ENGLAND,
Secretary of the Council.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



ST. LOUIS BRANCH.

CONSTITUTION AND BY-LAWS.*

PREAMBLE.

WHEREAS, The American Pharmaceutical Association is engaged in the laudable effort to elevate and refine the practice of Pharmacy and to improve its general conditions, and

WHEREAS, The aim and intent of the American Pharmaceutical Association is to secure and maintain the professional standing of the pharmacist—by encouraging the pharmacist to recognize the real dignity of the profession; by supporting the effort to regulate sound and thorough pharmaceutical education; by favor-

*Adopted at the Organization Meeting held March 22, 1912.

ing the enforcement and obedience of just pharmaceutical legislation; and

WHEREAS, The American Pharmaceutical Association is constantly laboring for the welfare of the individual, through the dissemination of valuable knowledge concerning all branches of Pharmacy—by aiding the passage of desirable legislation and combating that which would be detrimental to the pharmacist or hamper him in the daily pursuit of his profession; by promoting a feeling of mutual professional respect between the pharmacist and the physician, and

WHEREAS, We believe that the general usefulness of the American Pharmaceutical Association may be increased and extended and its scope of influence broadened and made stronger and the consequent benefits of membership made more valuable and productive of greater good by the formation of local branches, therefore, be it

Resolved, That we organize and maintain a Branch of this honorable Association, pledging ourselves to uphold its principles and objects by supporting the Constitution and By-Laws of the Association and to do all in our power to further advance and elevate the Practice of Pharmacy by the adoption of the following Constitution and By-Laws:

CONSTITUTION.

ARTICLE I.

This organization shall be called the Saint Louis Branch of the American Pharmaceutical Association. Abbreviated, St. L. Br. A. Ph. A.

ARTICLE II.

The object of this organization shall be to promote and maintain a local interest in the parent body by studying, observing and applying the principles of organization of the A. Ph. A., by arranging regular meetings for the discussion of such subjects as are of general or vital interest to Pharmacy, by encouraging greater efforts among the pharmacists in the field of research for the development and perfection of improved methods of manufacture.

ARTICLE III.

The membership of this Branch shall consist of Active members and Honorary members.

The names of candidates for Active membership to be presented by the Committee on Membership at any regular meeting.

The Honorary Membership shall be conferred through recommendation of the Committee on Membership.

SECTION 1. Every member of the A. Ph. A. in good standing residing in the City of Saint Louis, Missouri, or its suburbs, is eligible to Active membership with full power to vote upon all questions presented before the Branch Association.

SEC. 2. Every member of the A. Ph. A. in good standing, who is not an Active member, is eligible to Honorary membership with full privilege to attend meetings, and enter into all scientific or commercial discussions, present and read papers and perform experiments for the general edification of the Association and enjoy all privileges with the exception of voting upon questions before the Branch Association or at the annual election.

ARTICLE IV.

The officers of the Saint Louis Branch of the American Pharmaceutical Association shall be a President, two Vice Presidents, a Secretary, a Treasurer, and an Advisory Board, and shall be elected and installed at the regular October meeting.

ARTICLE V.

The President shall preside at all meetings. In his absence or inability to serve, the Vice Presidents in their order shall preside. He shall perform such duties as pertain to the office, and at the annual meeting present a report to the Association covering his administration.

The Secretary shall keep a record of all proceedings of the Association. He shall conduct all correspondence of the Association and at the annual meeting render a report covering his work from the time of the preceding annual meeting.

The Treasurer shall have supervision over all the funds and shall pay all bills when accompanied by vouchers signed by the President and Secretary and shall report the state of the treasury in writing at each annual meeting or whenever called upon to do so by the officers of the Association.

The Advisory Board shall consist of three Active members to be elected to serve one year and three Honorary members to be appointed by the President to serve one year.

ARTICLE VI.

Every proposition to alter, amend or change the Constitution shall be submitted in writing at any regular meeting, and upon receiving the vote of three-fourths of the members present at the next regular meeting shall become part of the Constitution.

BY-LAWS.

ARTICLE I.

The meetings of this Association shall be held in the Saint Louis College of Pharmacy, 2108 Locust street, the third Friday in each month at 8 p. m., from October to May inclusive.

Date and place of meeting subject to change by the President upon the written request of five members.

ARTICLE II.

Seven Active members shall constitute a quorum.

ARTICLE III.

The President shall appoint at the annual meeting or soon thereafter as convenient the following committees, each committee consisting of three Active members of this Association with the President and Secretary as ex-officio members:

A Committee on Membership whose duty it shall be to secure new members.

A Committee on Publicity to furnish news of meetings to the pharmaceutical and public press.

A Committee on Papers whose duty it shall be to encourage papers to be read before the meetings.

A Committee on Manufacture whose duty it shall be to have members perform experiments and produce finished pharmaceutical products before the meetings.

A Committee on Discussions whose duty it shall be to present at each regular meeting papers and items of local and general interest that have appeared in the pharmaceutical and medical journals and daily press.

A Committee on Legislation whose duty it shall be to keep the Association advised and informed of any and all legislation bearing upon any branch of Pharmacy, and shall at the annual meeting show the comparative values of the various State Pharmacy laws.

A Memorial Committee to represent the Association upon the death of a member.

Special Committees may be appointed by the President to perform special duties, the life of said Committee ending with the completion of the assignment.

ARTICLE IV.

Ordinary Parliamentary rules will govern each meeting.

All papers to be read before the Association must be in the hands of the Chairman of the Committee on Papers who must notify the President at least seven days before the date of meeting at which the paper is to be read.

ARTICLE V.

Order of Business.

Regular Meetings.

Roll Call.

Reading the Minutes of the Preceding Meeting.

Application for Membership.

Reports of Committees.

Unfinished Business.

Reading of Papers.

Discussion of Papers.

Adjournment.

ANNUAL MEETING.

ROLL CALL.

Reading of the Minutes of the last

Annual and all following Meetings.

President's Address.

Reports of Officers.

Reports of Committees.

Application for Membership.

Unfinished Business.

New Business.

Election of Officers.

Installation of Officers.

Adjournment.

ARTICLE VI.

These By-Laws may be amended or suspended at any regular meeting by an affirmative vote of three-fourths of the Active members present.

<>

JOINT MEETING OF THE NASHVILLE BRANCH AND THE NASHVILLE ACADEMY OF MEDICINE.

A meeting that it is hoped may bear fruit in the future was held in the assembly room of the Tulane Hotel at 8 p. m. Tuesday, February 27, 1912, between the Nashville Academy of Medicine and the Nashville Branch of the A. Ph. A., it being the date of the regular weekly meeting of the physicians. Arrangements had been made for a joint meeting of the two bodies on this date for the discussion of the proposed formulas for the forthcoming edition of the N. F.

The presiding officer, Dr. L. J. Caldwell, was in the chair. He opened the meeting by stating that we have present with us tonight the Nashville Branch of the A. Ph. A., who desire to call our attention to some of the formulas proposed for admission in the new N. F. and exhibit samples of the same for our comments and criticisms, and as we shall have the "last say" I hope you will not be backward in stating what you think of the proposed additions.

J. O. Burge, President of the Branch, was then introduced and gave a short outline of the history and objects of the Branch. He said in part that the Nashville Branch of the A. Ph. A. was a young organization, in fact

the baby Branch of the old Association, and came into existence less than two years ago. This is our first appearance in the professional world, our debut as it were. That the membership was composed of the most up-to-date pharmacists in the city, numbering about 35. That they were glad to have this opportunity of meeting with the physicians of Nashville and bringing to their attention a subject of so much importance to both professions. That these Branches of the A. Ph. A. were organized for the purpose of the professional and ethical side of pharmacy, and that they were exercising a great influence in raising the standard of pharmacy, by bringing their members together more frequently, when they could compare notes and discuss problems of their business that confront them daily in their daily store practice. That for several meetings past the members of the Branch had been exhibiting samples and discussing the formulas and methods of making the proposed additions to the new N. F., and at the last meeting, February 8th, it was decided that it would be interesting to bring these formulas and samples to the attention of the physicians of Nashville and secure the comments and criticisms on them from the viewpoint of the medical profession, that the same might be forwarded to the committee on revision for their consideration and action and that Dr. E. A. Ruddiman, Vice President of the Branch, had kindly consented to bring to their attention a few of the more important of these preparations.

Dr. E. A. Ruddiman was then presented to the assembly and after giving a brief history of the N. F. in which he stated that three editions of the work had already appeared, the first in 1888. That the fourth was now in the process of revision and would appear some time during this year. That the N. F. was edited, revised and published by the A. Ph. A. in this respect differing from the Pharmacopœia, which was revised and published by physicians and pharmacists jointly. That it was intended as an appendix, a stepping stone as it were to the Pharmacopœia to contain formulas for preparations used to a considerable extent throughout the country, but not of sufficient importance for admission into or retention in the Pharmacopœia. That the Pure Food and Drug law having placed the N. F. on the same footing with the U. S. P. it was necessary that as great care be used in revising one as the other.

For some time the Nashville Branch of the A. Ph. A. has been exhibiting samples and considering some of the formulas proposed for admission in the fourth edition of this work.

For convenience these formula were written on sheets of paper 16 by 24 inches. The class of preparations first called attention to was some proposed elixirs.

The first exhibited were those intended for use as vehicles, among which were Comp. Elixir Almonds, Comp. Elixir Cardamom, Aqueous Elixir Licorice, Red Elixir, etc.

Information was desired as to why so many formulas of this class of preparations were included. The explanation given was that it offered the physician a variety of vehicles to choose from differing in flavor and ranging in alcoholic strength from Aqueous Elix. Licorice, with only 3½%, to the Aromatic Elixir of the U. S. P. with 25%.

Dr. Witt asked what class of remedies would be most appropriate to use with the different vehicles? It was suggested that the Comp. Elix. Almonds and the Comp. Elixir of Cardamom would be useful in disguising the taste of the bromides, the iodides and the saline salts, while the Aqueous Elixir of Licorice could be used with the bitter tonics, quinine, etc.

The Comp. Elixir of Sodium Salicylate came in for quite a lengthy discussion. One physician thought it a bad idea to call it an Elixir, because it contains remedial agents; another that sodium salicylate should be left out as it was not indicated in the same case with potassium iodide, one being used in acute and the other in chronic rheumatism, that the use of the salicylates for over 36 to 48 hours was often attended with serious derangement of the stomach and kidneys, that the dose of the iodide was entirely too small for any remedial effect, and that if the dose was increased and the sodium salicylate left out, the combination might make a very good one.

Another doctor thought that such combinations have a tendency to increase counter prescribing and were better left out than inserted, that if the physician wanted such compounds he could write the formula for them. Another was of the opinion that doctors were not very good at writing prescriptions any way and if called on to write the formula for Comp. Cathartic Pills or Blue Mass, he was afraid he could not recall all the ingredients in either.

One doctor asked the object in using the metric system in these formulas, if it was done to mystify and confuse the physician? Dr. Ruddiman replied that when once learned and put into use it was found to be so much more simple and convenient that those using it seldom cared to go back to the old form as one could tell at a glance the percentage of any ingredient in a formula.

The Elixir of Three Bromides and the Formates did not meet with a very enthusiastic reception as "Bee Tea with seven Bees to the cup" would take the place of the Formates, and no two doctors would want the same bromides in his prescription.

The Antiseptic Solution of Pepsin seemed rather of a puzzle as they could not determine whether intended for internal or external use. It was explained that the intention was to use it as an antiseptic like Listerine and that class of preparations.

One doctor thought that all pepsin preparations should be cut out as they are used now only as vehicles.

As regards the physiological solution of Sodium Chloride it was thought well enough to have a standard solution of that. One doctor said that he had forgotten whether it required a teaspoonful of salt to a pint or to a quart of water.

The Solution of Coal Tar was highly commended. One doctor said it was the first formula presented that bore any originality. Another thought it should be classed as a tincture rather than a liquor, as it was made with alcohol. The Liquid Extract of Cinchona was thought to be a useless preparation as the Fluidextract is never used now.

The Aromatic Castor Oil sample made a good impression and was favorably commented on.

Another puzzling class of preparations was the Petrox formulas. The question being raised if they were intended for use as sprays, to which the answer was given that they were too heavy for sprays but were intended for use as liquid ointments, which class of preparations they resembled in their use. The intent of this class of preparations being understood and the many combinations it suggested being named it was more favorably considered.

Dr. George H. Price made a very nice talk, stating that he thought the meeting a good move and should bear fruit. That the idea of the pharmacists bringing these formulas

and combinations to the attention of the physicians was a good one and he hoped these joint meetings would be continued.

The consensus of opinion among the physicians seems to be that we already have too many preparations and a resolution was offered by Dr. A. B. Cook that "It was the sense of the Nashville Academy of Medicine that the committee of revision of the N. F. be requested to lessen the number of preparations and simplify the formulas."

From remarks made by some of the speakers the fact was brought out that many physicians do not seem to understand the objects and aims of the different organizations of pharmacists such as the A. Ph. A. The N. A. R. D. and the A. D. S. They do not recognize the fact that pharmacy is a double calling and has a professional and a commercial side, and that it is important if he would make a success of his business and make a living for himself and family he must have a knowledge of both sides for he must buy right if he would dispense right. The A. Ph. A. looks after the professional and the N. A. R. D. helps him along with the commercial end.

WILLIAM R. WHITE, Secretary.

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NEW YORK BRANCH.

(March Meeting)

President G. C. Diekman called to order the March meeting of the New York Branch at 9 o'clock on the evening of the 11th. The reading of the minutes having been dispensed with and the report of Treasurer Joseph Weinstein duly received, T. P. Cook, Chairman of the committee on education and legislation, presented the following report which was adopted as read:

"Your committee on education and legislation would respectfully report that on March 6th they attended a hearing before the board of food and drug inspection at Washington, on the pending tentative regulations, with respect to habit-forming drugs. It was explained to the board that our section, while desirous of co-operating with the government in the enactment of legislation to control the sale of habit-forming drugs, were of the opinion that the proposed regulations are unnecessarily drastic, burdensome, and expensive, and would not be productive of the result desired. A number of suggestions were made, which the board promised to take into consideration before again submitting the regulations for the signatures of the three

secretaries. It is believed that in a short time congress will take some action in this matter, based on the findings of the Hague Conference, and if congress shall in its wisdom pass a definite law on the subject, it will no doubt be capable of correct interpretation and administration, without due hardship to the trade.

"We understand that the Richardson bill is being rewritten with many of its objectionable features omitted."

The Chairman of the committee on professional relations, J. L. Lascoff, reported that the Branch would take part in a meeting of physicians and pharmacists to be held later in the month under the auspices of the Brooklyn Pharmaceutical Association. In addition he made a motion that steps be taken to arrange for the annual meeting of the Branch with the Medical Society of the County of New York. This matter was discussed briefly by Messrs. McElhenie, Weinstein, Schoenfeld and Craig, and the executive board was instructed to begin the preparations.

Because of the volume of the formal contributions provided in the program, the committee on progress of pharmacy did not present a report. The Chairman, Otto Raubenheimer, however, referred briefly to a new book by Dr. Walsh, entitled "Old-Time Makers of Medicine," and spoke of the approaching International Congress of Applied Chemistry.

At the request of the chair, C. O. Bigelow reviewed the work that had been done by the pharmaceutical conference in opposing the reduction in commissions at telephone pay stations. The result of the four months' deliberations of the conference had been that the pay-station agents were to get a commission based on a sliding scale of from 10 to 20 per cent. of the receipts.

The papers of the evening were then taken up, the first, entitled "The Selenium Treatment of Carcinoma" being presented by Dr. Felix von Oefele. This was a deeply interesting and very instructive presentment of the part the pharmacist should play, but too often does not play, in the application of the newer remedial theories. The pharmacy and pharmacology of the application of selenium derivatives in the treatment of cancer were explained quite clearly.

Dr. E. G. Kessler followed with a paper supplementing that of Dr. von Oefele, in which he recounted his work with compounds

of selenium in the treatment of human carcinoma.

Considerable discussion more or less germane to pharmacy followed the reading of these papers; and the authors were formally thanked by the Branch.

Mr. Raubenheimer read a paper on "Cork: Its History, Cultivation, and Manufacture," that was replete with information about this common drug-store utility which familiarity has robbed of much interest.

A score or more of the proposed National Formulary preparations were exhibited by Cornelius De Jonge who criticized some of the fourth installment of suggested formulas as follows:

Liquid Petrox—The preparation made according to the suggested formula separated after a day or two; the use of a little more oleic acid remedied this shortcoming. A preparation containing from 10 to 20 grammes more of the acid and correspondingly less liquid petrolatum kept well and required no heating in the manufacture. The present N. F. preparation is also satisfactory.

Diluted Iodine Petrox (alternate formula)—Although the suggested formula for the 10 per cent. iodine petrox gave satisfactory results with the less quantity of iodine it was not possible to get a clear solution except by using the modified liquid petrox referred to in the preceding paragraph.

Sulphur Petrox—It had been impossible to get even 1 gramme of sulphur to stay in solution after the preparation had cooled.

Solid Petrox—This would granulate in a few days. By using spirit of ammonia instead of ammonia water a better product was had. But because of the softness of the finished product the proportions of paraffin and liquid petrolatum should be modified.

Adjournment was taken at 11:50 o'clock.

HUGH CRAIG, Secretary.



NEW YORK BRANCH.

(April Meeting)

In the absence of President G. C. Diekman, the meeting of the New York Branch of the American Pharmaceutical Association held April 8th, was called to order by Secretary Hugh Craig, T. D. McElhenie subsequently being elected Chairman for the evening.

After the report of Treasurer Joseph Weinstein had been duly received, the committee on the progress of pharmacy reported through its Chairman, Otto Raubenheimer,

In this report were included abstracts of articles in foreign journals on the following subjects: "The Relations of Physicians and Pharmacists," "Tincture of Iodine D. A. V.," "Influence of Solution of Hydrogen Dioxide upon Aromatics in Mouth Washes," "Amylic Alcohol Test for Syrup of Raspberry D. A. V.," "Barium Poisoning," and "A History of Volumetric Analysis." The report also told of the cessation of the sale of solid extract of opium by several manufacturers because it was being used for smoking. A number of approaching meeting of societies were referred to, and the latest edition of Pharmaceutical Formulas was noticed.

For the committee on professional relations, J. Leon Lascoff reported that joint meetings with physicians had recently been held by the Brooklyn Pharmaceutical Association and the Westchester County Pharmaceutical Association. He also told of the plans being perfected for the annual meeting of the Branch with the Medical Society of the County of New York scheduled for May 7th, at the Academy of Medicine, and announced that the committee would meet with a committee from the medical society on the 11th to complete the arrangements.

The Branch then listened to the papers of the evening, the first to be presented being one by Prof. William Mansfield on "White Pine Bark of Commerce." In this the author pointed out the great difference in the content of resin between the rossed bark usually provided and the unrossed bark, showing with micrographs that the greater part of the resin was contained in the layers which were removed by the rossing. Not to the resin-content alone did the speaker confine his remarks, but he told in detail the structural characteristics of white pine bark whereby it might be identified and assayed microscopically.

Prof. H. V. Army followed with a paper on "The Resin-Content of White Pine Bark." He and Prof. Hostmann had assayed specimens of the bark furnished by Prof. Mansfield, extracting it with hot alcohol and precipitating this extract with water. They found that the unrossed bark gave a precipitate amounting to 14.8 per cent., while the precipitate from the rossed bark was only 6.2 per cent. The ether-soluble portion of the precipitates was 12.9 per cent. and 4.3 per cent. respectively. Prof. Army raised the question as to whether the resinous portion of the bark was adaptable for use in making

a syrup, also as to what was the therapeutically desirable constituent of the bark.

There was considerable discussion of the characteristics, chemistry, pharmacy, and therapy of white pine bark, and also of the specifications necessary for its standardization. Those joining in the discussion were Messrs. May, Raubenheimer, Mayer, De Jonge, Craig, and McElhenie.

The authors were formally thanked by the Branch.

Mr. De Jonge brought up for discussion a few of the proposed additions to the National Formulary. He had found that compound elixir of formates did not deposit crystals even when kept out of doors, but that it did change color ranging through yellow, brown, and violet.

Mr. McElhenie said that his compound elixir of formates did not deposit crystals when kept in the store.

Mr. De Jonge also reported that if aromatic solution of pepsin was kept in a warm place it soon lost practically all peptic activity.

Mr. Lascoff, who had experimented with the proposed formula for aromatic fluid-glycerate of rhamnus purshiana, said that the resulting preparation was very satisfactory, but the process was involved, time-consuming, and expensive.

This concluded the session, and adjournment was taken until May 13th, when it is planned to have a symposium on the subject of "Ergot."

HUGH CRAIG,

Secretary.



PHILADELPHIA BRANCH.

(April Meeting)

The last meeting of the Philadelphia Branch was held on Tuesday evening, April 2d, at the College of Physicians.

On account of sudden indisposition Mr. Beringer was unable to present his scheduled paper on Cudbear, and this feature of the meeting was postponed until May.

Mr. Blair's report as Chairman of the committee appointed to consider the advisability of arranging an exhibit at the Atlantic City Convention of the A. M. A. developed an enlivening discussion, some of the members being doubtful of the amount of credit that would reflect upon this body in return for the effort and money expended in preparing a display.

It was suggested that since the A. M. A. members who would attend the convention

came from all over the United States the better plan would be to have the American Pharmaceutical Association finance and man the exhibition, thus distributing the cost over the entire area which derived the benefits accruing therefrom, if any.

It was further stated that but scant recognition from the medical profession had rewarded previous efforts along the line of pharmaceutical displays, a very small part of the medical visitors evincing any interest in the same.

In reply it was asserted that holding an exhibition under the auspices of the A. Ph. A. would undoubtedly be a good plan, but the fact remained that no provision had been made therefor and it was incumbent upon the Branches to carry on the work. Although it might be difficult to trace direct local returns for the effort and money expended, the same reward could be reasonably expected that usually followed continued effort for the general good in other directions.

Tangible recognition had been given this Branch by the A. M. A. in the shape of a certificate of merit for its last display, and a fair proportion of medical visitors had indicated an interest in the exhibition.

Too great a degree of enthusiasm for a pharmaceutical display should not be expected from medical men attending a medical convention, since but a limited number of such visitors had any great interest in drug therapy, and out of this limited number it was safe to assume that a reasonable percentage had shown their interest by a careful inspection of the exhibit.

An interesting discussion of the formula for Solution of Magnesium Citrate was participated in by most of the members present, the topic having been introduced by Mr. J. W. England, whose paper on the same is published in full elsewhere in the JOURNAL.

There was general agreement that the present formula called for an excessive quantity of Citric Acid. The suggestion was made that Ginger be used as an additional flavoring agent as well as to secure its carminative effect, this substance having had a successful tryout at the hands of a prominent Rhode Island pharmacist during some years.

Sterilization of the product was considered a useless refinement if the formula calls for a freshly-made preparation to be dispensed.

An opinion expressed by Prof. LaWall that met with general favor included the sugges-

tions that the Pharmacopœia should state a method for determining the quantitative estimation of Magnesium Citrate, and also a test indicating the absence of Magnesium Sulphate in the finished product.

AMBROSE HUNSBERGER, Secretary.

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PHILADELPHIA BRANCH.

(Scientific Section)

The regular monthly meeting of the Scientific Section of the Philadelphia Branch of the American Pharmaceutical Association was held April 2d, President C. H. Kimberly presiding. On account of stormy weather the attendance was small, but the interest of the few present was not dampened.

In the absence of the authors, Dr. F. E. Stewart read a paper, prepared by L. H. Bernegan and George E. Ewe, on "Effects of Sodium Chloride, Sugar of Milk, Cane Sugar, Different Kinds of Milk, etc., on the Assay of Rennin." Some of the facts brought out were

(1) Of 10 lots of Rennin assayed only 3 were of labeled strength.

(2) Sodium Chloride in proper amounts increases the activity of Rennin, a mixture of Rennin and Sodium Chloride 1 to 7 being apparently most effective.

(3) Milk Sugar increases the milk coagulating power of Rennin, but not to so great an extent as Sodium Chloride. Best results were obtained from a mixture of Rennin and Milk Sugar 1 to 7.

(4) Cane Sugar decreases the activity of Rennin apparently in almost direct proportion to the amount of Cane Sugar used.

(5) Different lots of milk may exert a great influence on the assay of Rennin.

(6) Unpasteurized milk gives higher results than pasteurized milk in the assay of Rennin, and the age of the milk affects the assay.

Wm. A. Pearson gave a very comprehensive "Review of Recent Literature on Pepsin and Pancreatin," in which, among other things, he referred with considerable detail to:

(1) Some of the modern ideas concerning enzymes and their functions.

(2) An article which appeared in the October (1911) number of the Journal of Industrial and Engineering Chemistry on "Laboratory Studies of Pepsin, Pancreatin and Combinations of These," criticizing it because of its lack of charity of language and detail in explanation of processes.

(3) An article which appeared in the November number of the same journal by the same author, commending it for its general excellency.

(4) A paper in November number of the same journal on "A New and Accurate Method for Determining the Tryptic Value of Pancreatin."

(5) A paper in December number of the same journal on "Some Observations upon the Assay of Digestive Ferments."

(6) A tabular statement showing differences in conditions prescribed in the methods of assay for Pepsin as given in the various pharmacopœias.

In the discussion the following gentlemen took active part: Prof. E. F. Cook, Prof. C. H. LaWall, Prof. C. H. Kimberly, Dr. Smith, H. C. Blair, Dr. A. W. Miller, Dr. F. E. Stewart.

F. P. STROUP,
Secretary.

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CITY OF WASHINGTON BRANCH.

Dr. Kebler, in charge of the Drug Division of the Department of Agriculture, gave, at the April meeting of the City of Washington Branch of the American Pharmaceutical Association, held April 10, 1912, at the National College of Pharmacy Building, a most interesting talk on the experiences recently had in his department in making tests of a large number of samples of White and Yellow Wax submitted by competitive bidders for a government tract for these substances. In addition, effervescent salts, with especial consideration to those proposed for the National Formulary, were discussed.

Contrary to the usual rule, Dr. Kebler stated, the higher priced wax samples submitted were of the poorer quality and contained the greatest amount of impurities. Some of the samples contained as much as one-half paraffin, while others were practically, if not entirely, free from that substance. The U. S. P. method for determining the quality of the wax was found wholly unsatisfactory and inadequate, and it was necessary to devise a new method to obtain accurate and dependable results. In the absence of notes, Dr. Kebler did not feel that he should describe the process except informally. The basis for determining the purity rests in the amount of free hydrochloric acid obtained by the test.

When asked the occasion for the presence of such quantities of ceresin and paraffin in

the samples submitted, Dr. Kebler stated that he believed this due to the use of so much artificial comb or foundation in the present-day bee farming. This also brought out the statement that glucose, when free from certain impurities, was freely consumed by the bees in the aviary at the Department of Agriculture, but that the honey contained much unconverted glucose.

In the discussion of effervescent salts, the National Formulary direction that the mass should not be stirred was highly commended, it being stated by several members present that it was their experience that stirring wholly or partly destroyed the effervescent quality. Various members told of their efforts to make such salts without the use of a drying oven, and many were their methods. The use of a water bath seemed to have been most successful, although Mr. Bradbury described a method of using empty tins which he had found very satisfactory.

Respectfully submitted,

HENRY B. FLOYD, Secretary,
1840 You Street, N. W., Washington, D. C.

<>

CHICAGO BRANCH.

The Chicago Branch of the American Pharmaceutical Association held its April meeting at the University of Illinois School of Pharmacy on Tuesday evening, April 16th. The program of the evening consisted of a lecture by Professor A. H. Clark on the Pharmacopœia. Professor Clark dealt especially with the historical development of the Pharmacopœia, tracing its progress from the Pharmacopœia of 1820 down to the present time. He pointed out the important steps of its development and indicated the influence of the gradual increase of interest displayed by pharmacists in the revision of this work from the first Pharmacopœia, controlled entirely by physicians and revised by a committee of less than 20 delegates, down to the present revision controlled by pharmacists and with 300 delegates seated in the convention. Professor Clark's talk was received with much appreciation and President Wells thanked him in behalf of the members present for his instructive lecture. Copies of the Pharmacopœias from the first Pharmacopœia down and various revisions were shown, also a tabulation indicating development of the book from the first Pharmacopœia onward.

W. B. DAY, Secretary.

NEW ENGLAND BRANCH.

The regular meeting of the New England Branch was held at the Boston City Club, Monday evening, April 15. Members of the Boston Association of Retail Druggists and of the M. C. P. Alumni Association were invited to join us at this meeting and were asked to bring physicians as voted at the last Branch meeting. Altogether there were 102 at the dinner, of which number about forty were physicians.

Prof. Charles F. Nixon presided and introduced the speakers.

Mr. Marshall, who is Superintendent of the Propaganda Department of the B. A. R. D., delivered a masterful address of welcome to the guests, most of whom were physicians in his propaganda district and who have shown intense interest in the fight for honest medication.

Mr. Godding, President of the parent body, proud to see such a magnificent gathering under the auspices of his local branch, spoke on the proposed Fluidglycerates, Compound Antiseptic Powder and Glyconin Emulsion of Cod Liver Oil.

Since public opinion has been aroused against cold-storage eggs the use of factory-made and jobber-handled egg emulsions has been diminishing until practically all physicians prescribe this elegant National Formulary Glyconin Emulsion freshly made in small quantities by their local druggists.

Mr. Godding reported favorably on the Fluidglycerates from a pharmaceutical point of view, but it was subsequently voted that we recommend that no Fluidglycerates be included in the National Formulary, the doctors being especially emphatic in their demands that the list of preparations be as limited as possible, many expressing their opinions that even the official fluidextracts were in most cases relics of the heroic medication of bygone days.

Dr. Piper had been asked to speak on the fluidglycerates and the proposed fifty per cent. tinctures from the medical side. Becoming exceedingly interested in the subject he had sent postals to medical men of his acquaintance requesting their views and received no replies favorable to the preparations, but a considerable number quite severe in their condemnation of any attempt to give these lines official recognition.

The Branch then voted unanimously to

recommend that these lines be not admitted to the next National Formulary.

Mr. Glover spoke about Liquid Petrox and its combinations, but as he had not finished his experiments he could not give any definite conclusions.

Prof. LaPierre read a paper embodying his results from a series of experiments on the proposed formula for Salicylated Mixture of Iron which has given no end of trouble to those who have tried to prepare it. The following formula he devised which contains the same proportion of Iron in the same condition as in Dr. Cohen's original formula but which offers no difficulty in dispensing.

Sodium Salicylate	125 gm.
Iron and Ammonium Citrate...	36 gm.
Oil of Betula.....	4 cc.
Glycerin	175 cc.
Water to make.....	1000 cc.

Dissolve the Sodium Salicylate in 500 cc. of Water, mix with the Glycerin, add the Iron and Ammonium Citrate previously dissolved in 250 cc. of Water, then the Oil of Betula and Water sufficient to make 1000 cc. Mix and filter if necessary.

Mr. Ackerman reported on some Fluidglycerates and on Syrup of Iron Citrochloride and Syrup Protochloride. No pharmaceutical difficulties were apparent in these.

In the Eighth Revision of the U. S. P. two flavoring tinctures, those of Sweet Orange Peel and Lemon Peel, were introduced, but the experience of the members has been that both are extremely unstable, and to be at all suitable must be made from fresh fruit, taking the utmost care in rejecting the white portion of the underlying peel, and even then must be used at once. In view of this it was voted to recommend that the Spirits made from the volatile oils be again made official and that these tinctures be dropped.

Another official article which has caused trouble because of its poor keeping qualities is Ointment of Rose Water. Most of the commercial Cold Creams have a petrolatum base and keep indefinitely. No physician present knew of any therapeutic advantage of Almond Oil over Liquid White Petrolatum, and it was voted to recommend that the latter be substituted for the Expressed Oil of Almond in this formula in the U. S. P.

A vote of thanks was given to the Convention Entertainment Committee, of which J. F. Finneran was Chairman, for the money which was given the Branch, it being the re-

mainder from the entertainment fund after all expenses of the committee for the 1911 Convention.

R. ALBRO NEWTON,
Secretary.

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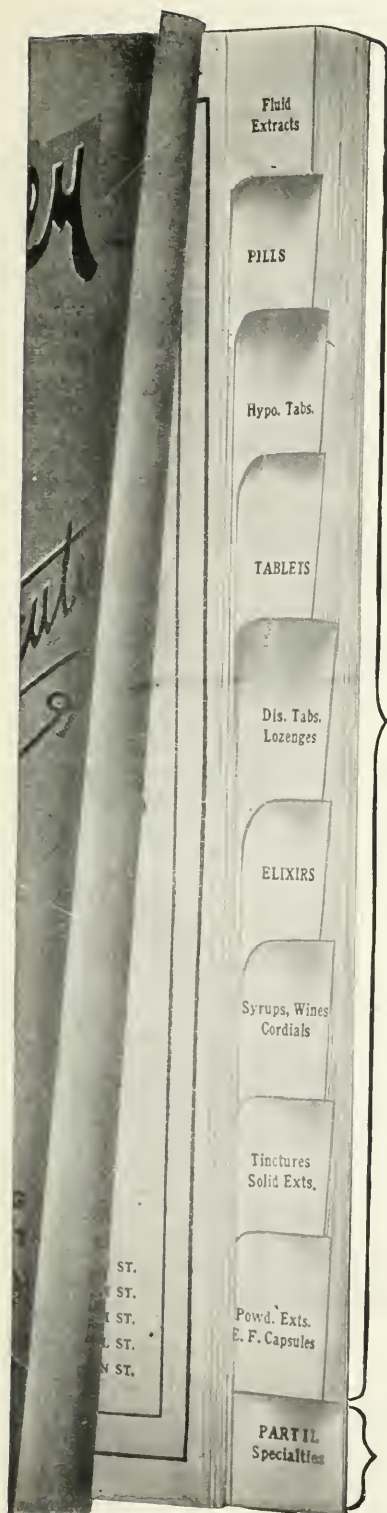
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The American Pharmaceutical Association

Organized: Philadelphia, 1852.

Incorporated: Washington, D. C., 1888.

Sixtieth Annual Convention, Denver, Colo., August 19, 1912.

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WHAT SOME OLD MEN HAVE DONE.

Socrates, when his hair whitened with the snow of age, learned to play on instruments of music. Cato, at fourscore, began his study of Greek, and the same age saw Plutarch beginning with the enthusiasm of a boy, his first lessons in Latin. The Character of Man, Theophrastus' greatest work, was begun on his ninetieth birthday. Chaucer's Canterbury Tales was the work of the poet's declining years. Ronsard, the father of French poetry, whose sonnets even translation cannot destroy, did not develop his poetic faculty until nearly fifty. Benjamin Franklin at this age had just taken his really first steps of importance in philosophic pursuits. Arnauld, the theologian and sage, translated Josephus in his eightieth year. Wincklemann, one of the most famous writers on classic antiquities, was the son of a shoemaker, and lived in obscurity and ignorance until the prime of life. Hobbes, the English philosopher, published his version of the Odyssey in his eighty-seventh year, and his Iliad one year later. Chevreul, the great French scientist, whose untiring labors in the realm of color have so enriched the world, was busy, keen and active when Death called him, at the age of 103.—*William George Jordan.*

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The Journal of the American Pharmaceutical Association

Volume I

JUNE, 1912

No. 6

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, \$3.00 per annum, within the United States. To Canada, \$3.35. To other foreign countries in Postal Union, \$3.50 per annum. Single copies, twenty-five cents.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

Papers and communications for insertion in the JOURNAL should be sent to the Editor, James H. Beal, Scio, Ohio. Subscriptions should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

THE PROFESSIONAL CERTIFICATION OF PHARMACISTS.

DR. WALTER A. BASTEDO, Professor of Pharmacology at the College of Physicians and Surgeons, at the joint meeting in 1910 of the New York Branch of the A. Ph. A. and the Medical Society of the county of New York, proposed that pharmacists should be professionally as well as legally certified, just as the better grades of milk are distinguished from those which barely meet legal requirements by being especially "certified."

Otto Raubenheimer took up and expanded this idea in his address as Chairman of the Section on Practical Pharmacy and Dispensing, at the Richmond meeting in 1910, and upon this address the committee to which it was referred reported as follows:

"The unique suggestion of Dr. Bastedo regarding the certification of pharmacists, to which our chairman has called attention, should not be allowed to pass without action, and suggestion is made that a special committee be established by the Section on Practical Pharmacy and Dispensing to consider the subject and report on the same at the next annual meeting."

Unfortunately, this important question was permitted to remain dormant until the joint meeting of the New York Branch of the A. Ph. A. and the Medical Society of the county of New York on May 7, of the present year, when it was revived by Mr. Raubenheimer in his discussion of the papers presented. He made the point that the prescribing physician knows the reliable pharmacists and pharmacies in his own neighborhood, but is entirely at sea when called from

home, and that there should be some method of certifying the pharmacies at which physicians can have absolute confidence that their prescriptions will be compounded correctly, and with the skill and care of the properly trained pharmacist whose business is conducted in accordance with medical and pharmaceutical ethics.

Following Mr. Raubenheimer's remarks, Dr. Jacob Diner made an eloquent appeal for the adoption of the suggestion made by Dr. Bastedo, and offered a motion, which was promptly and unanimously adopted, that there be a joint committee consisting of ten physicians from the Medical Society of the County of New York, and ten pharmacists from the New York Branch of the American Pharmaceutical Association to consider the matter and, if found advisable, to report to their respective societies the requirements for the proper certification of pharmacists and pharmacies.

That modern pharmacy is somewhat professional and very largely commercial is clearly recognized, and the method of harmonizing and regulating these two factors has been a hackneyed subject with pharmaceutical essayists and editorial writers for a number of years.

Some who have not reckoned with existing conditions, have been inclined to view with contempt all of that portion of the everyday drug business that does not deal strictly with the compounding and dispensing of medicines and prescriptions and the furnishing of sick-room requisites, and have proposed that pharmacists should proceed to abandon all other portions of their business. In like manner some extremists on the other side have inclined to the view that the pharmacist should altogether divest himself of the so-called professional features of his calling, assume the position of a dealer in general merchandise, medical and otherwise, and make use of modern commercial methods of business exploitation.

Still a third class have considered both existing conditions and professional ideals. They have recognized that there are great possibilities in professional pharmacy for a certain rather small proportion of those who have been legally registered to conduct drug stores, but that for the larger proportion there is not sufficient opportunity for sufficient purely professional or technical work to afford a livelihood for the would-be professors thereof.

These have been inclined to propose that pharmacists who have the inclination and are properly situated should specialize along professional lines, and that the remainder should specialize in commercial directions.

That this latter proposition is not wholly without justification appears from the tendency during the past few years to recognize a distinction between strictly prescription pharmacists and general drug stores; and it may be that this proposition by Dr. Bastedo and the New York Branch will prove to be the thin edge of the entering wedge that shall make the cleavage between professional and commercial pharmacy clear and distinct.

In the opinion of the writer, no more important proposition has been brought up for some years, and it is suggested that members of the A. Ph. A. give it their careful consideration and freely express their opinions through the JOURNAL.

J. H. BEAL.

Contributed and Selected

DIRECT TITRATION OF ACIDS IN ALKALOIDAL SALTS.

A. B. LYONS, M. D.

It is a familiar fact that certain indicators for alkalies (e. g. phenolphthalein) are not affected by most alkaloids, so that the combined acids of alkaloidal salts behave in titration almost as if they were free acids. It is also well known that attempts to determine such combined acids by titration with volumetric alkali solutions fail because in a certain concentration the alkaloids after all show an alkaline reaction so that the end point of the titration is not sharp enough for an exact quantitative determination.

I have recently hit upon a little expedient by which it is possible to make such a titration with a pretty close approximation to exactness in the case of many alkaloids. The indicator which has given me the most promising results is methyl red, changed by alkalies to yellow.

If 0.301 gm. of crystallized morphine be dissolved in 12 cc. of decinormal hydrochloric acid and methyl red indicator be added, it will require just 10 cc. of N/50 alkali to change the color of the solution to yellow. If now there be added to the solution 10 cc. of neutral chloroform, and the mixture be shaken, the indicator will be taken up by the chloroform, leaving the aqueous solution colorless. If now volumetric alkali be added to the mixture, little by little, shaking well after each addition, no apparent change will be produced until enough of the alkali has been added to more than saturate the whole of the combined acid present. As soon as there is excess the aqueous solution will appear yellow instead of colorless after shaking. The quantity of volumetric alkali required to produce this effect (in this case 50 cc. N/50) is a measure of the amount of combined acid, and so of the amount of alkaloid present.

The effect of the chloroform must be to withdraw the alkaloid from the aqueous solution as fast as it is set free by the alkali.

This gives us a new principle to act upon in titrations of alkaloidal salts, and one which promises to work out satisfactorily in the case of many alkaloids.

When chloroform is used for the solvent and methyl red for the indicator, the end reaction is reasonably sharp with morphine, quinine and strychnine. It is possible that some other solvent might be better, and that another indicator may be still better suited for the titration.

There is a field here for experimentation that may develop useful results. Of course, the behavior of each alkaloid must be studied, since these vary greatly in their degree of alkalinity. I have not tried atrophine salts, and should not expect to find that their behavior is like that of the salts of morphine.

The plan will enable us to titrate a solution containing a mixture of alkaloidal

and alkaline salts, (e. g. chlorides) without previously reporting the alkaloid, giving at least an approximate determination of the vegetable base. If free acid is present, this may also be determined in the same operation.

A PLAN FOR DETERMINING BY TITRATION BOTH ACID AND BASE IN BENZOATES OR SALICYLATES OF THE ALKALIES.

A. B. LYONS, M. D.

Dissolve 0.25 gm. of the salt (e. g. Sodium Benzoate) in 10 cc. of distilled water in a separator. Add 25 cc. of decinormal sulphuric acid. Shake out the benzoic acid with four successive portions of chloroform, which must be proved to be free from alkalinity or acidity. The chloroform must be drawn off each time into a second separator in which it is to be shaken with 20 cc. of distilled water, to wash out any sulphuric acid which may have accompanied the chloroform. After washing thus, transfer the chloroform to a suitable flask, in which the free acid is to be titrated with N/25 volumetric alkali (lime water answers well), using as indicator methyl red. The end point of the titration is indicated by the appearance of a yellow color in the aqueous stratum after shaking with the chloroform.

The water in separator No. 2 is to be transferred to separator No. 1 and the residual acid is to be determined by titration with N/25 volumetric alkali. This excess deducted from the volumetric sulphuric acid originally taken, gives a measure of the benzoic acid which has been extracted, and consequently of the base with which that acid was combined.

Evidently this second titration is all that is usually required, but the first serves as a check on the result obtained.

The method should be tried in comparison with that of the U. S. P. VIII to test the question which of the two is the more exact on the one hand, and the more rapidly executed in practice on the other.

NOTES ON CHEMICAL TESTS OF THE UNITED STATES
PHARMACOPŒIA.*

CARL E. SMITH.

(Continued from page 301.)

ACONITINA.—Requires 26 to 28 parts of alcohol for solution ("22 parts." U. S. P.). The melting point is not a good criterion of purity, as the alkaloid decomposes and melts at temperatures varying with the rate of heating. About 0.2 gm. should leave no weighable residue on incineration. Not all solutions of aconitine are laevogyrate, as B. L. Murray has pointed out; alcohol-solutions are dextrogyrate, water-solutions inactive, and benzene-solutions laevogyrate. Market products are variable in composition, frequently not responding to the perman-

*Analytical Laboratory of Powers-Weightman-Rosengarten Company.

ganate precipitation test, because of the presence of amorphous alkaloids, which may also be detected by a bitter taste of the weak solutions.

AETHER.—Determination of the specific gravity with results varying not more than two units in the fourth decimal place, has been described by G. D. Rosen-garten (*Jour. Ind. & Eng. Chem.*, 1911, v. 3, p. 872) as follows: "A calibrated pyknometer of 25 cc. capacity is employed. To determine its volume the pyknometer is first weighed with water at 25° C., choosing a convenient mark on the stem, say 30 or 40, which may be the more convenient. The pyknometer is then filled with ether to a little above the mark at which the weight of water has been determined and placed in a 1000 cc. beaker containing water, which is carefully kept at 25° C. and constantly stirred with a thermometer. When the volume of ether becomes constant in the pyknometer the excess of ether is drawn off by means of a capillary pipette until the desired mark is exactly reached. The pyknometer is then quickly dried with soft flannel or filter paper and weighed. A capillary pipette for this purpose is easily made by drawing out an ordinary eye-dropper." Attempts to cause ether to boil in a test-tube by means of the warmth of the hand are seldom successful. This test should therefore be omitted and the boiling point determined in the regular manner. 25 cc. should leave no weighable residue on evaporation from a platinum or porcelain dish and drying the dish at 100°. The test for aldehyde should be made with exclusion of light. As peroxides are liable to form in ether on keeping, especially when exposed to light in partially filled containers, tests for these are important. Baskerville and Hamor recommend cadmium potassium iodide. The test may be made by shaking 10 cc. of ether with 1 cc. of a freshly made water-solution of cadmium potassium iodide (1 in 10), in a glass-stoppered tube, protected from light, occasionally during one hour. No color should develop in either liquid. Peroxides cause liberation of iodine. When cadmium potassium iodide is not available, a freshly made solution of potassium iodide U. S. P. (1 in 10) may be used with almost equally reliable results. For a full study of the tests of ether for anæsthesia, by Baskerville and Hamor, see *Jour Ind. & Eng. Chem.*, 1911, v. 3, p. 302.

AETHER ACETICUS.—It should not leave more than 0.01 per cent. of residue on evaporation. A more exact means than that given in the U. S. P. for determining the ethyl acetate contents is the following: About 4 cc. of acetic ether are weighed in a 100 cc. flask provided with a stopper of glass or rubber. A few cc. of water are added and free acetic acid neutralized with alkali hydroxide, with phenolphthalein as indicator. The neutralized liquid is then shaken briskly for a few minutes with 50 cc. of normal alkali, until the ester is dissolved. By shaking the mixture occasionally during 2 hours, the saponification will be completed without heating or it may be hastened by warming gently. If the reaction is incomplete, the unchanged ester may be detected by its odor, after cooling. The excess of alkali is titrated with normal acid. Each cc. of normal alkali (0=16) corresponds to 0.08806 gm. of ethyl acetate. The sulphuric acid test for carbonizable impurities is rather too exacting, particularly when the ester is kept in cork-stoppered containers. A slight color at the zone of contact should be allowed.

AETHYLIS CARBAMAS.—It should not leave more than 0.05 per cent. of residue on incineration. In addition to conforming to the U. S. P. requirements, it should

stand the following tests: The water-solution (1 in 20) should be neutral to litmus, should not show more than slight traces of chloride with silver nitrate, and should show no nitrate by the ferrous sulphate test.

AETHYLIS CHLORIDUM.—The test for hydrochloric acid may be made more definite and practical by dissolving 1 cc. of ethyl chloride in 20 cc. of alcohol and adding a few drops of silver nitrate. No turbidity should be produced at once. This also serves as a test for ethyl bromide and iodide. The test of the last paragraph may be modified to advantage in this manner: On spontaneous evaporation of 10 cc. from a shallow dish no foreign odor should be noticeable while the last portions evaporate and no weighable residue should remain.

ALCOHOL.—Comments in pharmaceutical literature on the U. S. P. requirements indicate that these are fairly satisfactory. The chief criticisms have been that alcohol stored in wood-containers is excluded by the test for tannin and that the test for methyl alcohol is incapable of detecting smaller quantities than 2 per cent. As a result of experiments with various methods, J. Rosin proposes a modification of the present test, capable of detecting about 1 per cent. of methyl alcohol: 1 cc. of alcohol (95 per cent. by vol.) or a proportionately larger quantity of weaker alcohol is diluted to 10 cc. with water, in a 40 cc. test-tube. 0.5 cc. of sulphuric acid is added, the mixture cooled, and 5 cc. of a cold 15 per cent. water-solution of potassium permanganate added. After 2 minutes the precipitate produced is dissolved by addition of just enough sulphurous acid, and the liquid boiled until free from the odor of acetaldehyde. It is then cooled and 1 drop of a water-solution of resorcinol (1 in 200) added. A portion of this mixture is stratified over an equal volume of sulphuric acid. Not more than a light pink and no rose-red zone or whitish flakes near the zone should be produced. Legal's test for acetone is useful when adulteration with ordinary wood spirit containing acetone is suspected. It is conveniently applied as follows: To a mixture of 5 cc. of alcohol and 2 cc. of sodium hydroxide solution (5 p. c.) about 5 drops of a freshly made water-solution of sodium nitroprusside (1 in 50) are added, then acetic acid to a *slightly* acid reaction. No violet color should appear within 1 minute. For determining non-volatile matter platinum or porcelain dishes should be used instead of a glass vessel, as the U. S. P. directs, since glass loses appreciably in weight during contact with steam or hot water.

ALOIN.—According to J. M. Francis the product of the American market is *not* "chiefly prepared from Curaçao aloes," as stated by the U. S. P. He proposes that the vague requirements as to solubility and ash be replaced by the following: "Not more than 1.5 per cent. should be insoluble in either water, alcohol, or acetone. It should not leave more than 0.5 per cent. of residue on incineration." Of the identity tests given in last paragraph of the U. S. P., p. 36, only the first and the last are applicable to all permissible varieties of aloin. Solutions of aloin should be neutral or not more than faintly acid to litmus.

ALUMEN.—For identification as a potassium salt the test with sodium bitartrate is not conclusive, as ammonium alum also gives a precipitate with this reagent. The flame test is more reliable. Arsenic is a probable impurity not provided for in the U. S. P. tests. The official Gutzeit and Bettendorf tests can be used. The U. S. P. tests are not sufficient to determine if the salt conforms to the "rubric"

requirement of at least 99.5 per cent., as it may contain other impurities, such as ammonium, calcium, magnesium, chloride, and others. Quantitative determinations of aluminum and of potassium may be required in doubtful cases.

ALUMEN EXSICCATUM.—A literal interpretation of the requirements admits any dried alum, regardless of the amount of water it may have absorbed, provided it has a dry appearance and contains not more than 1 per cent. of impurities when in the anhydrous state. However, it was obviously not the intention of the Revision Committee to permit the presence of an indefinite amount of absorbed water, as the efficacy of the salt, for the purposes intended, decreases in proportion to the quantity of water it contains. As the salt is decidedly hygroscopic, a test defining a limit of water should be given. Foreign pharmacopœias allow 10 per cent.

ALUMINI SULPHAS.—This salt crystallizes with varying quantities of water under different conditions, the salt of the market sometimes containing more, sometimes less than 16 molecules. The German Pharmacopœia recognizes a salt containing 18 molecules. A salt containing only traces of free acid, as required by the U. S. P., cannot be expected to make a clear solution in water, because of hydrolytic dissociation. Excessive contamination with arsenic, for which no test is given, has sometimes been noted. The German Pharmacopœia directs the Bettendorf test. Determinations of aluminum and of water are required to ascertain if more than 0.5 per cent. of impurities are present.

AMMONII BENZOAS.—As Seidell and Menge have reported, neither the melting point nor the reaction to litmus paper is a satisfactory means of establishing purity. They recommend titration of the ammonia after distilling the salt with fixed alkali. For pharmacopœial purposes it is probably sufficient to titrate the free benzoic acid in a water-solution of the salt, with litmus as indicator. Pure ammonium benzoate is a little alkaline to litmus. Traces of chloride and sulphate should be allowed in this salt.

AMMONII BROMIDUM.—It does not volatilize "completely," but should not leave more than 0.05 per cent. of residue, when heated. A test for bromate is unnecessary, as it cannot exist in the salt when it has a slightly acid reaction. The standard of purity is now unnecessarily low, as the salt is readily obtained 99 per cent. pure, the chief impurity being ammonium chloride.

AMMONII CARBONAS.—Market products contain from 27 to 31 per cent. of ammonia; the U. S. P. standard of at least 31.58 per cent. is seldom reached. It should not contain more than 0.05 per cent. of non-volatile matter. The titration is made more conveniently with methyl orange as indicator without boiling.

AMMONII CHLORIDUM.—While nominally allowing 0.5 per cent. of impurities, the U. S. P. gives tests which exclude any salt less than 99.9 per cent. pure. As ammonium sulphate is the chief impurity in this salt, the requirement of almost entire absence of it is equivalent to requiring practically a chemically pure product.

AMMONII SALICYLAS.—The U. S. P. requires that a concentrated aqueous solution "should redden blue litmus paper." With much care a salt can be made having a slightly alkaline reaction, but unless perfectly dry and kept in full, tightly stoppered containers, it soon loses enough ammonia to acquire an acid reaction. Therefore, this requirement excludes a salt of the highest attainable purity, and

places a premium on a product containing considerable quantities of free acid. Free salicylic acid, which is practically the only impurity this salt is likely to contain in excess of traces, is best determined as stated under *Ammonii Benzoas*. Non-volatile matter should not exceed 0.1 per cent.

AMYLIS NITRIS.—It should be required to distil completely at a temperature not exceeding 110°, to exclude objectionable impurities, such as amyl nitrate and nitropentane. In the assay it is advisable to use only half the volume of potassium iodide solution and of sulphuric acid directed, but both should be of double strength. This hastens the reaction and makes it more nearly complete.

ANTIMONII ET POTASSII TARTRAS.—The limit of arsenic, which was changed in 1907, is by some critics considered too lenient. This impurity is found to be difficult to remove, and involves methods of purification that cause partial oxidation of the antimony, which would require lowering the percentage of pure salt in the product from 99.5 per cent. to 98.5 or 98 per cent. The tests for sulphate, heavy metals, and potassium bitartrate hardly show "absence" of these impurities as stated, but are sufficiently sensitive for practical purposes.

ANTIPYRINA.—The melting point as given by various authorities, including the more important recent pharmacopœias, varies from 109° (Danish Pharmacopœia) to 114° (French Pharmacopœia). Market samples examined during two years past, while otherwise conforming to all U. S. P. requirements, had melting points ranging between 105° and 113°, the entire melting intervals being included in these figures. The difficulty of obtaining products having uniform melting points has also been noted by Lefelt and others. Ash should not exceed 0.1 per cent. The U. S. P. test for acetanilide cannot be used, as pure antipyrine also responds to the iso-nitrile reaction, but complete solubility in 1 part of cold water excludes this adulterant, as well as phenacetine, sufficiently well.

APO MORPHINÆ HYDROCHLORIDUM.—The salt of commerce, as furnished for medicinal purposes, is not anhydrous as the U. S. P. formula indicates, but contains $\frac{1}{2}$ molecule (2.89 per cent.) of crystal-water, which it loses over sulphuric acid and regains on exposure to the air. About 0.2 gm. should leave no weighable residue on incineration. A test for decomposition products given by recent pharmacopœias consists in shaking about 0.1 gm. with 10 cc. of ether, when the latter should not become more than slightly reddish. Fresh stock, under these conditions, gives no color whatever. Frerich's test for other alkaloids including by-products of the manufacture of apomorphine, consists in placing about 0.1 gm. of the salt on a dry filter and washing it with a cold mixture of 1 cc. of hydrochloric acid, U. S. P., and 4 cc. of water. The washings may become turbid, but should yield no precipitate at once on the addition of Mayer's reagent. The test is based on the sparing solubility of apomorphine hydrochloride in diluted hydrochloric acid.

AQUA AMMONIA.—Non-volatile matter is more accurately and conveniently determined by evaporating a measured quantity without previous neutralization. Because of the solvent action of ammonia solutions on glass, 0.02 per cent. should be allowed in 10 per cent. and 0.05 per cent. in 28 per cent. solutions, although when freshly bottled they contain much less than this. Appreciable amounts of ammonia will be volatilized and results found too low, when the U. S. P. direc-

tions for the assay are followed. It is more practical to weigh the sample in a flask containing either volumetric acid or sufficient water to prevent volatilization.

AQUA HYDROGENII DIOXIDI.—Determination of acidity by direct titration, which is directed by most foreign pharmacopœias and sometimes recommended by writers in American journals is not reliable, as part of the alkali forms a combination with hydrogen peroxide which gives no color with phenolphthalein, according to Endemann and others. The U. S. P. method is to be preferred. The test for hydrofluoric acid is not delicate enough to prove "absence," but is sufficiently so to exclude objectionable quantities.

ARGENTI NITRAS.—In the test for lead the mixture with sulphuric acid must be kept hot to prevent crystallization of silver sulphate, which may be mistaken for lead sulphate. The test for foreign salts may give misleading results, unless several precautions are taken, which are not mentioned in the U. S. P. Hydrochloric acid should be added only in slight excess, to a hot solution of the salt, and the mixture allowed to stand until the liquid is clear. A little silver chloride still remains in solution, as a rule, and may be removed by evaporating the filtrate to dryness on a water-bath and taking up the residue with water and a few drops of diluted hydrochloric acid. Any insoluble matter should be filtered out and the filtrate evaporated. This test is superfluous, as the same impurities will be shown by the titration, when this is made with sufficient care to obtain results within 0.1 per cent.

ARSENI TRIOXIDUM.—It should not contain more than 0.1 per cent. of non-volatile matter. Commercial products often contain over 1 per cent. To dissolve arsenic trioxide in sodium bicarbonate solution for titration, there is no objection to boiling in order to hasten solutions. The statement sometimes made that normal sodium carbonate, which is formed by heating, decolorizes iodine under the conditions of the assay, has been found erroneous. It is more convenient, however, to dissolve the sample in caustic alkali, neutralize, and add sodium bicarbonate, as proposed by Caspari, but presence of caustic alkali favors atmospheric oxidation and the solution should be neutralized without delay. Not less than 0.2 gm. should be taken for an assay, for accurate results.

ATROPINA.—The melting point of a considerable number of commercial samples were found to vary between 113° and 116°, the upper figure, together with other tests, indicating total absence of hyoscyamine in a number of cases. About 0.5 gm. should leave no weighable residue on incineration. About 0.1 gm. should dissolve in about 2 cc. of sulphuric acid without imparting to it more than slight yellow color and this color should not be more than slightly increased on addition of about 0.1 cc. of nitric acid. Entirely colorless solutions, as demanded by the U. S. P., are not obtained with any product of the market. A test for apoatropine and belladonnine, required by the more recently published pharmacopœias, consists in adding 2 cc. of ammonia water to 5 cc. of a water-solution of atropine (1 in 60) made with a slight excess of diluted sulphuric acid. No turbidity should be produced at once.

ATROPINAE SULPHAS.—The salt furnished to the trade contains about 1 molecule (2.59 per cent) of crystal-water and is somewhat efflorescent (the U. S. P. formula is that of the anhydrous salt, stated to be permanent in air). The

melting point varies greatly with the rate of heating. According to Riedel the pure salt can be melted at 180° by slow heating and at 190° by rapid heating. Other pharmacopœias give melting points ranging from 180° to 184° . In other respects the remarks under *ATROPINA* apply also to this salt. The presence of hyoscyamine in atropine and its salts is best determined with a polariscope.

AURI ET SODII CHLORIDUM.—To be certain of complete precipitation of gold, in the assay, it is advisable to add a second portion of a few cc. of hydrogen peroxide solution about half an hour after adding the first portion. The same volume of liquid should be maintained during the period of heating, by addition of water if necessary. The precipitation is best made in a small, well-glazed, covered porcelain casserole.

BENZALDEHYDUM.—It is colorless only when freshly distilled and becomes yellowish on keeping a short time. A test for nitrobenzol is given in the Belgian and German pharmacopœias. It has been found satisfactory when made as follows: About 1 gm. of benzaldehyde is dissolved in 20 cc. of alcohol and enough water added to produce a slight turbidity. A brisk evolution of hydrogen is maintained in the solution for 1 hour by additions of zinc and diluted sulphuric acid. It is then filtered and evaporated to about 20 cc. On boiling this with 2 drops of potassium dichromate test solution no violet color (indicating presence of aniline) should be produced. The U. S. P. assay method, according to various analysts, does not give even approximate results. A sample, recently examined by H. C. Frey and the writer, in which no impurities other than about 5 per cent. of benzoic acid could be detected, assayed 51 per cent. by this method. No satisfactory method is at present known. An adaptation of the U. S. P. (Blank and Finkenbeiner) method for formaldehyde gave with the same sample 94.5 per cent., but several days were required for complete reaction. The U. S. P. tests, including specific gravity and boiling point, a test for nitrobenzol, and determination of benzoic acid (by titration in alcohol-solution, with phenolphthalein as indicator) should be sufficient to limit impurities, exclude adulterants, and define approximately the percentage of actual benzaldehyde.

BENZOSULPHINIDUM.—Described as "nearly odorless." It is odorless when pure, but usually has a faint aromatic odor. The melting point is given as 224° for the pure substance by some authorities, also for the medicinal substance by several pharmacopœias. Para-sulphamine-benzoic acid, often present as an impurity, melts at 280° to 283° and may raise the melting point of saccharin considerably. Market samples have been found to melt between 215° and 225° . Residue on incineration should not exceed 0.5 per cent. A series of 13 samples yielded from 0.13 to 0.33 per cent., chiefly sodium sulphate. A water solution should have a distinctly sweet taste in a dilution of 1 in 10,000.

BETANAPHTHOL.—The melting point of acceptable market samples varies from 119° to 123° . Other pharmacopœias give from 120° to 123° . Non-volatile matter should not exceed 0.05 per cent. The tests for alphanaphthol should be made in cold, saturated solutions.

BISMUTHI CITRAS.—A pure salt theoretically contains bismuth corresponding to 58.44 per cent. of bismuth oxide, which would be excluded by the present limit of 56 to 58 per cent. As stated in the Brit. Pharm. Codex, the salt usually

contains 2 to 3 per cent. of absorbed water, allowance for which should be made in an assay.

BISMUTHI SUBCARBONAS.—In the test for alkalies and alkali earths a limit of 0.2 per cent. should be allowed.

BROMOFORMUM.—A product containing only 1 per cent. of alcohol decomposes rapidly. The German and Belgian pharmacopœias require 4 per cent., with a view to better keeping qualities. Bromoform of the latter composition congeals at 5° to 6°, boils at 144° to 150°, and has a specific gravity of 2.829 to 2.833 at 15°/15°, according to the German Pharmacopœia. It should be free from suffocating odor (carbon oxybromide).

BROMUM.—The U. S. P. tests are not sufficient to determine if the limit of 3 per cent. of impurities is exceeded, no provision being made for the limitation of chlorine, which is the principal impurity, always present to some extent in bromine of commerce. A simple test to show approximately how much is present, proposed by the German Pharmacopœial Commission, is as follows: "1 cc. of a solution of 1 gm. of bromine in 29 gm. of water is diluted with water to 10 cc., 3 cc. of ammonium carbonate solution (1 part ammonium carbonate, 3 parts water, 1 part 10 p. c.-ammonia water) are added, then 5 cc. of n/10 silver nitrate. The mixture is shaken briskly and filtered, then acidulated with nitric acid of about 25 per cent. A very slight opalescence and no formation of a deposit in 1 hour indicates presence of about 1 per cent. of chlorine; a moderate opalescence and a deposit after half an hour about 2 per cent.; a decided opalescence, but still translucent liquid and a deposit of flakes after 2 or 3 minutes about 3 per cent.; an opaque mixture, beginning to form flakes at once, 4 per cent. or more." The test should be made in tubes of about 2 cm. diameter. An improvement of the iodate method for exact determination of chlorine in presence of bromine is given by L. W. Andrews in *Jour. Am. Chem. Soc.*, v. 25, p. 756.

CAFFEINA.—Products of representative sources do not contain more than 0.1 per cent. of non-volatile matter. The requirement that caffeine should produce colorless solutions with concentrated sulphuric or nitric acid, is hypercritical, but about 0.5 gm. should dissolve in 5 cc. of either sulphuric or nitric acid without producing more than a slight yellowish color.

CAFFEINA CITRATA.—Several additional tests are required to establish purity and correct composition. Residue on incineration should not exceed 0.1 per cent. A saturated water-solution should stand the U. S. P. time-limit test for heavy metals. A 1 per cent. water-solution should remain clear 5 minutes after addition of barium chloride. It should not yield less than 49 per cent. of anhydrous caffeine by the following test: About 0.5 gm., dried to a constant weight at 80° before weighing, is dissolved in 10 cc. of warm water, an excess of caustic soda solution added and the cooled mixture shaken with 3 portions of 20, 10, and 5 cc., respectively, of chloroform. The combined chloroform extracts are evaporated to dryness and the residue dried to a constant weight at 80°. In the U. S. P. solubility test (2d paragraph of small type) separation usually does not take place for several hours after dilution with 5 parts of water, unless the liquid is cooled to a low temperature.

CAFFEINA CITRATA EFFERVESCENS.—It should yield not less than 1.95 per cent. of anhydrous caffeine, when about 5 gm. are assayed by the method given above.

CALCI BROMIDUM.—The U. S. P. tests are not sufficient to determine if the salt contains the required 97 per cent. of Ca Br_2 . Among impurities not provided for, it may contain much chloride, a little sulphate, and also magnesium and alkali salts. For an exact determination of the actual Ca Br_2 contents quantitative determination of calcium and of bromine would be required, but for practical purposes it is usually sufficiently exact to determine the chloride, after the salt has been rendered anhydrous at about 180° , by precipitating bromide and chloride together as silver salts, then making an approximate separation of the two by means of a limited quantity of ammonium carbonate solution (see test for chlorides under ACIDUM HYDROBROMICUM, U. S. P., p. 13). The impurities in the products of reputable makers are usually so well within the U. S. P. limits, that quantitative determinations are not required.

CALCI CARBONAS PRAECIPITATUS.—The test for "limit" of iron, aluminum, and phosphates practically requires *total absence* of these impurities. Additional tests are needed to ascertain presence of the required 99 per cent. of CaCO_3 , as the salt may contain chloride, sulphate, magnesium and alkali salts. A volumetric determination of calcium is readily made by dissolving the salt in hydrochloric acid, expelling carbon dioxide by boiling, then adding an excess of ammonia water and precipitating with volumetric oxalic acid. The excess of oxalic acid is titrated in an aliquot part of the filtrate with permanganate (for details see Fresenius, Quant. Anal.). In doubtful cases, e. g., when a considerable quantity of calcium sulphate or chloride is present, a carbon dioxide determination may be necessary.

CALCI CHLORIDUM.—When "rendered anhydrous by fusion," as specified by the U. S. P., the salt undergoes decomposition sufficiently to acquire an alkaline reaction, while it is required to be "strictly neutral." A nearly anhydrous, neutral salt is made at a lower temperature in granular form. A limit of 0.1 per cent. of magnesium and alkalies is equivalent to requiring a purity of practically 99.9 per cent., instead of 99 per cent. as specified, as magnesium is the chief impurity in calcium compounds not readily removed. Determination of calcium (by the method indicated above or other suitable method) would make a test for magnesium and alkalies superfluous.

CALCI HYPOPHOSPHIS.—The test for "absence" of phosphate and sulphate will not detect traces of these, nor can absence of phosphate be demanded in a salt that is subject to atmospheric oxidation with formation of phosphite and phosphate. No method is provided to determine presence of 98 per cent. of $\text{Ca (PH}_2\text{O}_2)_2$. The permanganate method of the U. S. P. of 1890 has been criticised as being unreliable because of interference of sulphites, thiosulphates, phosphites and phosphates. Although theoretically the presence of these substances should cause the results to be too high, experience has shown the tendency of the method towards too low results. Sulphites and thiosulphates are not now found in the commercial product and all except traces of phosphite and phosphate may be eliminated by adding an excess of lime water to a water-solution of the salt and applying the permanganate method to the filtrate. For more exact determinations it is preferable to precipitate phosphite and phosphate with lead acetate,

oxidize the hypophosphite in the filtrate with nitric acid and determine it by the usual methods as phosphate.

CALCI PHOSPHAS.—The test for barium, as given, is far from being sensitive enough to prove "absence" of it. Strong acidulation with nitric acid effectually prevents precipitation of decided traces of barium sulphate. A better way would be to use barely enough nitric acid to bring the salt in solution, add the potassium sulphate, and let the mixture stand for some hours. If a precipitate is formed, it should be readily and completely dissolved by further addition of nitric acid. Some specimens of this salt have been found to respond to the U. S. P. test for excessive quantities of arsenic, when actually the arsenic present was well within U. S. P. limits. The samples, when boiled with silver nitrate solution, gave evidence of containing traces of some impurity capable of reducing silver, assumed to be phosphite, which, on conversion to phosphine during the test for arsenic, would produce a yellow spot similar to that produced by arsine. After a preliminary treatment with nitric acid, as directed in the U. S. P. for hypophosphites, no reactions for arsenic were obtained. When the salt contains more than traces of magnesium or of sulphate, quantitative determinations of either calcium or phosphoric acid, or of both, may be required, to ascertain if a minimum of 99 per cent. of $\text{Ca}_3(\text{PO}_4)_2$ is present.

CALX CHLORINATA.—A committee on Standard Specifications of the *Am. Chem. Soc.* proposes requirements as follows: It must be white, fresh, and dry, must contain not less than 31 per cent. of available chlorine, and must settle readily and completely when mixed with water; if lumps are present, they must break down and leave no core. Analyses are to be made by Penot's method, by adding an excess of n/10 sodium arsenite and titrating excess with n/10 iodine (Sutton's *Volumetric Analysis*, 10th ed., p. 177). Further details are given in *Jour. Ind. & Eng. Chem.*, 1911, v. 33, p. 861. The U. S. P. method of assay has the defect that any chlorate present is included in the determination. By acidulation with acetic acid, according to Bunsen, instead of hydrochloric acid, more accurate results may be obtained by the U. S. P. method.

CALX SULPHURATA. The semi-quantitative test intended to show presence of at least 55 per cent. of calcium sulphide has been found by J. Rosin to give results much too low, chiefly because of interaction between the sulphide and sulphite, which is always present. By methods involving removal of sulphite before determination of the sulphide, a recent sample was found to contain 58.5 per cent. of Ca S., when the U. S. P. test indicated presence of less than 55 per cent.

CAMPHORA.—No pharmacopœia, so far as the writer is aware, has as yet admitted synthetic camphor, although it is claimed in various quarters to be therapeutically equivalent to the natural product. Borisch's test, as given in the Swiss Pharmacopœia, to distinguish natural from artificial camphor, is based on the presence of some characteristic impurity in the former. About 0.01 gm. of camphor is stirred with a few drops of a 1 per cent. solution of vanillin in concentrated sulphuric acid. Natural camphor gives a yellow color, changing to red, violet, and blue. Synthetic camphor gives no colors. The German Pharmacopœia states the specific rotatory power of a 20 per cent. solution of pure natural camphor in absolute alcohol to be $+44.22^\circ$ at 20° . A specimen of a synthetic

product was recently found to have a specific rotation of about $+15^{\circ}$. It is usually stated that synthetic camphor is optically inactive. According to the French Pharmacopœia camphor should make a clear solution in benzene, to show absence of more than traces of water. The test also shows presence of inorganic impurities of various kinds. Non-volatile matter should not exceed 0.05 per cent.

CAMPHORA MONOBROMATA.—While this substance dissolves in concentrated sulphuric acid without decomposition, as stated, the solution has a decidedly yellow color, which is not stated. This color may be erroneously considered to indicate presence of impurities. It disappears when the solution is poured into water. G. A. Menge reported 5 commercial specimens to melt between 74.8° and 76.2° . On the basis of examination of 36 samples adoption of a melting range of 74° to 77° seems advisable. Non-volatile matter should not exceed 0.05 per cent. It should be nearly free from water-soluble halogen compounds, as shown by shaking about 0.5 gm. of the powdered substance with 10 cc. of water. The filtered liquid should be neutral to litmus and show not more than a slight opalescence on addition of silver nitrate.

CARBO ANIMALIS PURIFICATUS.—The test for limit of ash should be made with the dried substance or the calculation made on the basis of the dried substance. It should not lose more than 5 per cent. in weight when dried 2 hours at 100° . No limit of moisture is now required. The following additional tests are also recommended: When boiled with 100 parts of water, 10 cc. portions of the filtered water should not be made turbid at once by barium chloride or silver nitrate. On heating to boiling about 1 gm. with 20 cc. of water and 1 cc. of diluted hydrochloric acid, the filtered solution should not respond to the U. S. P. time-limit test for heavy metals.

CARBO LIGNI.—In addition to the U. S. P. requirements, it should meet the following: Dried 2 hours at 100° it should not lose more than 5 per cent. in weight. When dry, it should burn without a luminous flame and leave not more than 5 per cent. of ash.

CHLORALUM HYDRATUM.—Much confusion exists as to the melting point, which is an important test of purity. This is illustrated by the figures of several pharmacopœias and other authorities: 58° (French, Japanese, Austrian); about 58° (U. S., Belgian); 53° (Swiss); 47° (Spanish); softens at 49° , completely melted at 53° (German); 51° , when pure (P. Siedler); 49° to 51° , when pure (M. Lefeldt). Formerly the products in this market melted at 58° or a few degrees lower, but more recently most samples tested have melted at 53° or but little higher. A commercial sample recently examined, after drying over sulphuric acid, softened at 49° , began to melt at 50° , and was completely melted at 53° . It conformed in other respects to the U. S. P. standard, stood the former U. S. P. nitric acid test, as well as the iodoform test, for alcoholate, and assayed 99.9 per cent. by a method described below. The same sample, when recrystallized from benzene, softened at 49° , began to melt at 50° , and was completely melted at 51° , corroborating the figures given by Siedler and Lefeldt. A melting point higher than 51° is probably due chiefly to presence of butyl-chloral hydrate (m. p. 78°). The U. S. P. requires a freshly prepared water-solution of chloral hydrate to be neutral to litmus, but it was pointed out by Schering many years ago that such solutions

always have a slightly acid reaction. This has often been verified since then. The test for chloride is faulty, as the pure substance very soon liberates hydrochloric acid in water-solution, but an alcohol-solution (1 in 20) should not at once redden moistened blue litmus paper nor should it become opalescent at once on addition of silver nitrate. Non-volatile matter should not exceed 0.05 per cent. The U. S. P. has no test for alcoholate, that with nitric acid, given in the first printing in 1905, having been cancelled in 1907. This test is now official in several of the important, more recently published pharmacopœias. Statements have been made that the nitric acid test is misleading and unnecessary, as the presence of alcoholate would be shown by the melting point, but it appears that the correct melting point of chloral alcoholate has not yet been definitely ascertained and the published figures for it are rather near to that of chloral hydrate itself, being 56° (Jungfleisch) and 46° (Lieben), as quoted by Beilstein. The writer can find no fault with the nitric acid test as it was given originally in the U. S. P., VIII, as follows: If 1 gm. of Hydrated Chloral be placed in a porcelain dish and covered with 1 cc. of nitric acid (sp. gr. 1.38), no yellowish coloration of the mixture should be produced at ordinary temperature, or even after warming the mixture 3 or 4 minutes, nor should yellowish fumes be produced after 10 minutes' warming. The Swiss Pharmacopœia requires a purity of 99.5 per cent., by the following method: About 4 gm., accurately weighed, are dissolved in 10 cc. of water, then 30 cc. of $n/1$ caustic alkali added and the mixture allowed to stand exactly 2 minutes. The excess of alkali is at once titrated with $n/1$ acid, with phenolphthalein as indicator. Each cc. of $n/1$ alkali ($O=16$) consumed corresponds to 0.1654 gm. of CCl_3COH+H_2O . Market products at the present time test from 99.5 to 100 per cent. by this method. It is important to adhere closely to the specified conditions of time and concentration for reliable results. It should be taken into consideration also, that the impurities most likely to be present also neutralize alkalies under the conditions of the method, and that, therefore, the results are of value only for corroboration of the results of other tests and for detecting excessive quantities of water.

CHLOROFORMUM.—The specific gravity (1.476 at $25^{\circ}/25^{\circ}$) does not accurately correspond to a maximum alcohol content of 1 per cent., as intended. It corresponds more closely to the minimum content of 0.6 per cent. To insure presence of alcohol within these limits, the specific gravity at $25^{\circ}/25^{\circ}$ should be not less than 1.473 nor more than 1.477. A higher specific gravity may indicate either that alcohol is not present in sufficient quantity for effectual preservation or that a liquid having a higher specific gravity than chloroform, such as carbon tetrachloride, is present. Determinations should be made with a pycnometer of verified accuracy, of the type described under *ÆTHER*. A boiling point determination is of little value for ascertaining the purity of chloroform. A few tests in addition to those of the U. S. P. may be of value. No weighable residue should remain on evaporation of 20 cc. from a platinum or porcelain dish and drying the dish at 100° . Presence of carbon oxychloride would be shown, according to various foreign pharmacopœias, by a suffocating odor of the sample. However, it is never found in chloroform that stands the U. S. P. sulphuric acid and silver nitrate tests. The barium hydroxide test, U. S. P., 1890, was directed principally against this impurity, but was dropped at the last revision because of its unre-

liability, pure products often failing to comply with it. It has lately been proposed again by C. Baskerville. As carbon tetrachloride has for some years been a source of manufacture of chloroform, contamination of the product with this is possible. No reliable simple test for it has yet been devised, but determination of the specific gravity, after removal of alcohol and water, should show its presence. To remove alcohol, about 50 cc. of chloroform should be shaken with successive portions of 10 cc., 10 cc., and 5 cc. of concentrated sulphuric acid, the chloroform then neutralized by shaking with a solution of alkali carbonate, then dehydrated by shaking occasionally for half an hour with about 5 gm. of anhydrous potassium carbonate or calcium chloride, decanted and distilled. The first portion of distillate should be perfectly clear to show that water was completely removed. The specific gravity of the distillate should not be higher than 1.4848 at 25°/25°. That of carbon tetrachloride is about 1.60. Chloroform of U. S. P. standard, after removal of alcohol and water, had a specific gravity of 1.4846. Another portion of the same specimen, to which 2% by volume of carbon tetrachloride was added, and which was then treated for removal of alcohol and water, had a specific gravity of 1.4858. A test for acetone in chloroform is desirable. A reliable and sensitive test consists in shaking 5 cc. of chloroform with 5 cc. of water. To the separated water 2 cc. of sodium hydroxide solution (5 p. c.) and 5 drops of a freshly made water-solution of sodium nitroprusside (1 in 50) are added and the mixture made slightly acid with acetic acid. No violet tint should appear.

CHROMII TRIOXIDUM.—The U. S. P. requires that when it is decomposed by heat, the residue obtained "should yield nothing soluble in water." This is too exacting, as other pharmacopœias allow from 0.5 to 1 per cent. of alkali chromate. The test for sulphuric acid does not show "absence" of it, even when no turbidity is produced after long standing. Not only the dilution, but also addition of "a few cc." of hydrochloric acid prevent detection of traces, but the test is quite delicate enough for detection of objectionable quantities of sulphuric acid. Enough hydrochloric acid should be added to prevent precipitation of barium chromate.

(To be continued.)

THE ART OF FLAVORING.*

JAMES CROMBIE, PH. C.

I fear that the title of this paper is somewhat misleading. It is not my intention to enumerate the main flavoring agents and to show you how such may be applied individually or in combination to form pleasing and palatable preparations of things that are otherwise, but rather to advance a suggestion or theory whereby flavoring as an art may be better understood, and some system devised which will guide us in our selection of flavors and in the making of flavor combinations. Not only has your several discussions on the flavor or aroma of B. P. waters suggested the subject to my mind, but the many very fine flavored preparations—

*Read before the Pharmaceutical Society of Great Britain, at Edinburgh, March 20, 1912. Reprinted from *The Pharmaceutical Journal and Pharmacist*.

often of proprietary origin—which are finding much favor, both with prescribers as well as patients, have awakened the need there is on the part of the individual pharmacist to cultivate the art of flavoring on some system rather than on the present rule-of-thumb methods which, to say the least concerning them, are too haphazard. To understand the matter fully it is necessary to introduce an aspect of the subject which at first sight may seem foreign to this paper, but which, in a fuller light, I feel sure, will prove an essential, viz.: The physiology of taste and smell. You will here note that taste and smell are two distinct senses, the one felt in the mouth by the tongue and the other in the nose by the olfactory epithelium. But most physiologists give flavor as simply smell, and describe it entirely apart from taste. While this may be perfectly correct physiologically, we cannot, from a pharmaceutical point of view, entirely separate the two. To illustrate, we would never think of supplying a sour taste with the same flavor as we might a sweet taste. A lemon flavor would run with an acid, while a cinnamon would be more agreeable to a sweet. While making this proviso, allow me to return to the physiology of the subject. First in a general way, and secondly with more particular attention to the organs under review. *General*.—Any cause that provokes a nerve to action is called a stimulus, and the evidence of that stimulation may be felt as a sensation either pleasing or otherwise. All appreciable qualities of objects in the surrounding world are natural stimuli at the sensory periphery, and these natural stimuli are the physical qualities of objects that excite, as smell, sight, hearing, taste, etc. *Particular*.—The principal nerve of taste is the glosso-pharyngeal, which supplies the posterior part of the tongue—*i. e.*, that portion of the buccal surface which most contributes to taste. Two other nerves also take part in taste. These are the so-called gustatory branch of the fifth, which is a common sensory nerve, and the chorda tympani of the seventh. The nerve ends by which taste excitation are considered to be received are the taste bulbs. Each taste bulb is an oval body formed of long fusiform cells arranged in cortical and medullary groups. Tastes may be classified into (1) sweet, (2) bitter, (3) acid or sour, (4) salt. It has not been decided whether alkaline and metallic tastes are elementary. The substance to be tasted must be dissolved; here there is a striking contrast to the sense of smell: flavor is really odor. Further, the solutions to be tasted should be about the temperature of the body, as then the sensation is more readily felt—on an average in about one-fifth of a second. It would seem that specific tastes have specific nerves, for different parts of the tongue are more sensitive to certain tastes than others; the back to bitter, the tip to sweet and salt, the sides to acid, the middle to hardly any. Cocaine applied to the tongue in increasing doses is said to abolish sensation of all kinds in the following order: General sensibility and pain, bitter taste, sweet taste, salt taste, acid taste, tactile sensations. When diluted sweet and salt solutions are simultaneously applied to the tongue, they tend to neutralize one another, but a true and definite point is difficult to reach. Sweet and bitter, sweet and acid liquids are antagonistic to a similar but less perfect extent. The delicacy of the sense of taste is shown by the power to detect one part of sulphuric acid in 1000 of water. Quinine, common salt, and sugar are less easily detected, but in the order given. Chewing the leaves of an Indian plant, *Gymnema Sylvestre*, destroys the sensibility to bitter and sweet, but leaves

the power to discern acids and saline bodies. The union of taste and smell is said by one writer on the subject to give rise to the composite sensation termed the flavor of a substance, while all the others consulted entirely separate taste from flavor, and describe the latter under smell. This may be the true philosophy of the subject, but, as already noted, it is impossible for us, as pharmacists, to separate the two entirely. The manner in which smell is conveyed is variously described. One writer says: "Odoriferous particles carried in the inspired air into the lower nasal passages pass by diffusion into the upper chambers, and, coming into contact with the olfactory epithelium, give rise to the sensation of smell." Another states that it is necessary that odorous substances should be in a gaseous state in order to act on the olfactory epithelium. A third, Ramsay, has advanced the theory that the sense of smell is excited by vibrations of a lower order than those which give rise to the sense of light or heat, and he points out a series of important facts in support of this view. He states that to produce the sensation of smell a substance must have a molecular weight at least fifteen times that of hydrogen. For instance, the specific gravity of marsh gas is eight—no smell; of ethane, fifteen—faint smell; of propane, twenty-two—distinct smell. Haycraft, assuming the correctness of Ramsay's hypothesis—that smell depends on the vibratory motion of odorous particles—has endeavored to show that the quality of the sensation depends on the kind of vibration producing it. He has also traced a correspondence between the character of the smell and the position of the body producing it in the groups in which Mendelejeff has arranged the elements to illustrate the periodic law. When we remember that smells can be filtered through cotton wool without loss of pungency, the theory of odoriferous particles exciting the nerves falls somewhat short. And, again, that odorous matters of animal effluvia, etc., are of a higher specific gravity than the air, and do not readily diffuse, upsets the general application of the gaseous theory. Here we are left with the vibratory theory of Ramsay, which may be applied without exception to all emanations. And it becomes the more likely when we think how the forces sound, light, and heat are transmitted. This, then, brings me to my theory, or suggestion, for a better understanding of smell or flavor. Having admitted that the sense of smell is conveyed by vibration, it appears quite feasible to draw a parallel between smell and sound. If certain sound waves produce certain notes, then certain smell waves must produce certain odors. In music we have scales of notes, in which every musical sound has a place, and to the trained ear of a musician very fine gradations of sound may be determined. Why, then, should we not have an odorous or flavoring scale drawn up and clearly defined, to which all odors may be compared? Again, we might learn, as in music, that certain notes or flavors may not run together, in other words, will not harmonize, but will produce discords. Another way it might be shown that, as in music, all flavor combinations must be on the same key. One might well imagine such flavors as liquorice giving low notes on the scale, while higher up might be placed cinnamon, almonds, nutmegs, and still higher eucalyptus, thymol, menthol, etc.; and perhaps at the top ethereal flavors, as pineapple, pear, raspberry, etc. One difficulty suggests itself—*i. e.*, the selecting of simple or elementary flavors to form notes on the scale, most flavors, even those derived from a single source, being of a composite nature. The foregoing and many other

similes might be drawn between music and flavor by those better versed in the theory of music. There is one point of special importance to pharmacists, that which might be termed the psychology of flavoring. If a preparation has a pleasing appearance, the person taking it may be predisposed towards it, and will naturally seek for a pleasant flavor, and, if present, will appreciate it to a greater extent than he would if it looked dull and uninviting. Just fancy a connoisseur of good wine seeking to roll upon his tongue a wine of miserable color and muddy appearance! This, then, forms my theory or fantasy on flavoring, and though it may be more in the nature of a dream than a reality, still I hope it may serve the purpose of awakening in some greater mind the possibility of some system which will guide us in the art or science of flavoring.

DISCUSSION.

Mr. Boa said this was a very suggestive paper. It was well to have some definite principle to go upon in flavoring. In regard to perfumery it was interesting to note that if, for example, they put a drop of oil of eucalyptus on blotting paper and shook it, they would observe a series of different odors coming off in stages, thus indicating that all essential oils were a complex combination of different odors. Again, it would be found that if two perfumes, having nothing in common, were mixed, the result would not be agreeable. Another point to be observed was, and he thought this a principal consideration in the building up of perfumes, that odors diffused at different rates. If they put a few drops of one perfume at the corner of a room, for example, the odor would be perceptible at the other extreme much earlier than in the case of some other perfume placed in the same position at the same time. This had to be borne in mind when, in blending perfumes, they were endeavoring to back up one by the addition of another. In such cases it was necessary to select perfumes which diffused at the same rate. Culinary flavors, such as lemon, orange, or vanilla, were generally of a simpler nature than those found in perfumes. The sense of taste and the sense of smell seemed to be closely related. He knew a man engaged in the drapery trade who was accustomed to buy and sell perfumes, but he was almost destitute of the sense of smell. Nevertheless, he could select perfumes by the curious method of allowing a little to trickle down the throat. He thought Mr. Crombie should follow up the interesting suggestions he had made, and embody the results in a future communication. It seemed not unlikely that, as the result of experience, and probably unconsciously, those accustomed to obtain any desired flavor, really did so by proceeding on such lines as Mr. Crombie indicated.

Mr. Henry said he had noticed that in the B. P. Codex, an otherwise excellent publication, the formulæ seemed frequently to fail, because of the flavor being unsatisfactory. In the case, for example, of the syrup of glycerophosphates, it is spoiled by the harshness of the taste. In this respect it differed from the proprietary articles. Possibly, this might be due to the fact that the B. P. Codex preparation contained a larger proportion of glycerophosphates. He thought Mr. Crombie had done the craft a service by this ingenious suggestion.

Mr. Merson said those who had experience in the making of palatable preparations, had been accustomed to reach a result by a rule-of-thumb method, and it would be an advantage to have some definite system instead.

Mr. Somerville said the question of flavoring with certain medicaments was important. He had often heard it said that a mixture containing quinine flavored with syrup of orange was a fraud. The agreeable odor of the orange, and the sweetness of the sugar were speedily replaced by the bitterness of the quinine. If they could hit upon a flavor which would mask the quinine bitterness in the pleasing odor and sweet taste of the sugar, it would be an advantage. It was often said by those who took Gregory's Powder, that if it was mixed and handed to them by another person, it was more easily taken, because they had not time to perceive the nauseous odor which was so evident when they had themselves to mix it with water.

Mr. MacPherson said he thought Mr. Crombie had omitted the chief point suggested by his paper, namely, a definite scale for flavors. His recollection was, that this was an idea that was made much of by Mr. Piesse, and Mr. Crombie might get some useful hints from his published book on perfumery.

Mr. Rowland said it would not be so easy to get a scale of odors from natural products, each of which represented rather a chromatic scale. A better plan would be to begin with some of the coal tar products which could be separated by fractionation, as was done even already in the case of many of the essential oils. By collecting these fractions together, they might be able to hit upon a scale.

Mr. Hill said the title of Mr. Crombie's paper would have been more accurate if he had called it not "The Art of Flavoring," but the "Science on which the Art of Flavoring is Based." What he had said was suggestive, but only preliminary, and he hoped Mr. Crombie

would follow the matter up and give a subsequent communication setting up something like a definite practical scale.

Mr. Tait said, taking the analogy of music, a novice could play a scale on a piano, but it would be destitute of that quality which would be imparted to it by a highly trained pianist. The same was even more noticeable in the production of a vocal scale. In the same way they might draw up a scale of flavors according to the science of flavoring, but the art of flavoring was something more that could only be reached by training and experience.

Mr. Crombie, in replying, said it was difficult to draw up a scale, and, certainly they would have to begin with some of the elementary odors. In the case of a preparation like cod-liver oil emulsion they might have two classes of flavors, the ethereal odor being the first perceptible, and some heavier odor towards the last, so as to mask the flavor of the cod-liver oil. With regard to distinguishing perfumes by swallowing them, it had been stated that the nostrils could be filled full of such a thing as eau de Cologne without perceiving any odor, but if air bubbles were admitted the odor was immediately perceptible. This seemed to suggest that in order to produce the sense of smell the substance must be in a gaseous or suspended form. Flavoring was very frequently completely overdone, and he thought that in this country we were much behind. The Americans excelled in giving just that amount necessary and no more. In preparations such as cod-liver oil emulsion he sometimes found as much as a drachm of oil of almond or oil of cinnamon to a gallon of emulsion, which was quite excessive. Six drops to the gallon was ample for flavoring purposes. Recently he had been asked by a hairdresser to supply him with something possessing the distinctive odor of a hair preparation. At first he was puzzled, and then imagined that he had tasted the same odor. On reflection, he remembered that his impression was associated with some liquorice pastilles which he had tasted, and, when tasting, had perceived the odor. Syrup of orange was quite insufficient as a flavoring agent for covering the taste of quinine. They required something very much heavier, such as liquorice. In regard to taking Gregory's Powder, it was well known that by simply holding the nose a person would find the swallowing of Gregory's Powder quite an easy matter.

THE INFLUENCE OF HYDROGEN PEROXIDE ON THE AROMATIC COMPONENTS OF MOUTH-WASHES.

(Notes from the Laboratory of E. Sachsse & Co., Leipzig.)

As hydrogen peroxide has, besides disinfecting, very vigorous oxidizing propensities, it is obvious that it has a deteriorating influence on all essential oils, etc., which have easily oxidizable constituents, such as alcohols, aldehydes, etc.

It is, therefore, of importance to every manufacturer of dental and similar preparations to know which essential oils and other aromatic products are influenced by hydrogen peroxide, and which remain unchanged.

The table below will show this.

The hydrogen peroxide solutions used were made as follows: 0.05 oz. aromatic substance (essential oil or chemical) were mixed with 40 ozs. alcohol 55 over-proof, 30 ozs. water, and 25 ozs. of a 12 percent solution of hydrogen peroxide. These mixtures were left two months in stoppered brown bottles, and then compared with similar freshly-prepared mixtures.

<i>The Aromatic Substance Employed.</i>	<i>Remarks on the Taste and Character of the Solutions after two months.</i>
Oil of almonds freed of prussic acid	Turned entirely to benzoic acid
Anethol	
Oil of aniseed tsf. "Sachsse"	Unchanged
Oil of star aniseed tsf. "Sachsse"	
Bornylacetate	Unchanged.
Carvacrol	Weaker than the fresh solution
Cinnamic aldehyde	Entirely oxidized, insipid taste, not a trace of cinnamon flavor left
Oil of cloves tsf. "Sachsse"	Slightly changed—the taste of the fresh solution is more agreeable.
Eugenol	
Oil of caraway seed tsf. "Sachsse"	Unchanged, only slightly weaker
Carvol	

Oil of cognac	}	Unchanged
Oil of cognac tsf. "Sachsse"		
Eucalyptol	}	Unchanged
Oil of eucalyptus tsf. "Sachsse"		
Geraniol		Greatly changed, taste insipid and fusty
Oil of geranium Spanish tsf. "Sachsse"		Slightly weaker, otherwise unchanged
Oil of lemon		Greatly changed, taste insipid, soapy
Oil of lemon tsf. "Sachsse"		Weaker, and has lost the true lemon character
Oil for marasquino		Weaker, but otherwise not much changed
Menthol		Greatly changed, the refreshing flavor of menthol disappears entirely
Menthylacetate		Greatly changed, the refreshing flavor of menthol disappears entirely
Oil of neroli	}	Weaker, but otherwise unchanged
Oil of neroli tsf. "Sachsse"		
Oil of orange, bitter	}	Slightly weaker, but otherwise unchanged
Oil of orange tsf., bitter. "Sachsse"		
Oil of orange, sweet	}	Falls off entirely
Oil of orange, tsf., sweet. "Sachsse"		
Oil of peppermint (all qualities)		Unchanged
Oil of pine (all qualities, tsf. "Sachsse")		Slightly weaker, but otherwise unchanged
Terpinol		Entirely changed; sour flavor
Thymol		Unchanged
Vanillin		

The preceding results prove that hydrogen peroxide—

(1) Destroys entirely the flavor of oil of almonds, cinnamic aldehyde, geraniol, oil of lemon natural and tsf., menthol, menthylacetate, oils of peppermint, vanillin.

(2) Weakens the flavor of carvacrol, oil of cloves tsf., eugenol, oil of caraways tsf., carvol, oil of cognac natural and tsf., oil of geranium Spanish tsf., oil for marasquino, oil of neroli natural and tsf., oils of orange bitter and sweet natural and tsf., terpineol.

(3) Has no influence whatever on the flavor of anethol, oil of aniseed tsf., oil of star aniseed, tsf., bornylacetate, eucalyptol, oil of eucalyptus, tsf., oils of pine tsf., thymol.

FROM "THE PERFUMERY AND ESSENTIAL OIL RECORD."

SOME OF THE BEAUTIES OF PHARMACY.

WILLIAM C. ALPERS, SC. D.

It has always been one of the greatest pleasures of my life to spend an hour among students. I like the atmosphere of the school room. There is something animating and refreshing about it. I feel tonight like a wanderer who had lost his way and suddenly sees his home in the distance, and I therefore consider it a great privilege to be with you and address a few words to you. If there were anybody in this world whom I might envy his position it is the teacher. I do not know of any occupation that is more apt to elevate than that of teaching, because there is the continuous influence from the young, the continuous emanation of the youthful spirit, the continuous contact with all that is impulsive, beautiful, cheerful, and ideal. The ardent desire of my own life to be a teacher and live among the young and remain young with them has not met with fulfill-

*Address delivered before the Students' Chemical Club, Princeton University, April 25, 1912.

ment, and I will probably remain a poor business man to the end of my days. But perhaps on this account I enjoy a short stay among students the more, and it seems to me that the spirit with which your hearts are filled, the spirit of unlimited confidence in your own strength, the spirit of unblighted hope in a bright future, the spirit of pure and noble optimism—in short, the spirit of idealism—comes from you to me as a good, dear old friend, and seems to give me a new lease of life.

Starting out with such words it seems to be difficult to come to the subject that has been assigned to me, Pharmaceutical Chemistry, and combine this study, which is supposed to be a dry and uninteresting one, with the lofty flight of my thoughts when I look into your faces. Yet I can assure you that, if practiced in the right way, there is perhaps no science that will lead the professional man into broader and wider fields of thought than can pharmacy. Pharmacy is generally considered a rather insignificant part of chemistry. It might be called a step-daughter who is allowed to run behind the others. The reason for this is probably because pharmacy is not a science in itself, but takes a little from quite a number of other sciences, and puts these different parts together, trying to make a dignified looking coat out of the many-colored patches. We have to know more or less of botany, microscopy, bacteriology, therapeutics, materia medica, surgery, physics, chemistry, and commercial sciences, and be skillful in manual work of various kinds, in order to be called pharmacists. I do not know if any of you ever had the idea of going through a course of chemistry to engage in pharmacy, perhaps not. Perhaps you think it is below your dignity, perhaps you think there is not enough reward in it. Unfortunately, too, professional pharmacy in this country is covered up, and hidden under, a conglomeration of foreign interests that catch the eye of the thoughtless, and make many people believe that there is nothing great behind it. Pharmacy, if practiced in a thoughtless, mechanical way, is indeed a drudgery, like any occupation where the worker allows himself to become a machine, continually nagging at everything around him and bewailing his own misfortune, thinking he is destined to be something better. It is impossible for me, in the few minutes that are at my disposal, to tell you all the beauties, the possibilities, the broadness, of my profession. But by way of illustration let us only go through one little prescription that any physician might order for you in the case of a cold. This prescription consists of five ingredients: Syrup of Ipecac, Syrup of Squill, Ammonium Chloride, Codeine Sulphate, Syrup of Wild Cherry. A common prescription, as it is prepared in every pharmacy almost every day. The thoughtless druggist takes down one bottle after another, measures so many cubic centimeters or drams, weighs so many grains or centigrammes, and that is the end of it. Then he goes to the next piece of drudgery, as he calls it.

But let us look at this prescription in a different light, let us follow each ingredient to its source and see what possibilities there are for instruction and enlightenment.

IPECAC—Where do we get it? Our mind at once takes a trip south. We land in the jungles of South America, we see the wily natives, the descendants of the Incas, who know the value of this precious root. Their forefathers knew it before white man set foot on this continent. They pick it secretly, wash it,

pack it in bundles, and carry it on their heads to the nearest trading station. We would like to roam through the beauties of these virgin forests, we admire the brilliant colors of the birds, the insects, the flowers, that seem to allure us into the dangerous thickets. But we pass on to the second article.

SQUILL—What is it? It is the bulb of a plant growing on the coast of the Mediterranean Sea. We fly across the Atlantic, quicker than an aeroplane, and arrive in Italy and Greece. Here we find the plant that at the time of Herodotus was known as a valued medicine. In our minds we take a side trip to the Coliseum at Rome. We walk in amazement through the halls of the Vatican and the great museums of Italy, where the treasures of mediaeval art rival the wonderful relics of antiquity. Or we climb the hills of the Parthenon and recall the time of Athens' greatest power and civilization. But we have no time for these reminiscences. We come to the third article.

AMMONIUM CHLORIDE—What a number of thoughts press on our minds at once if we follow this chemical into its details and into its sources. It is impossible to express them all. Let us only consider one thing, the name derived from the Oasis of Jupiter Ammon. So we cross the Mediterranean Sea and arrive in the land of the Pharaohs. At the time of the old Egyptians the caravans through the desert made their first stop at the Oasis and worshipped their god, Ammon. Here, from the piles of accumulated refuse from the camels, under the influence of the tropical sun, the first Ammonia gas was generated, and some Ammonium Chloride found, which in those days was considered a valuable salt of miraculous powers. Thus our trip takes us to the Pyramids, and in awe and admiration we look up to the Sphinx. We would like to enter deeper into the dark continent and explore its flora and fauna. But pressure of time takes us further.

CODEINE SULPHATE—An alkaloid of opium. We leave Egypt and cross over to Asia Minor. We cast a glance at the field when in olden times the great city of Troy flourished. We think of the beautiful Helen and the deadly fight between Hector and Achilles. Then we admire the modern fields of poppies with their bright flowers, cultivated by the Armenians. We pass through the valley of roses of Cashmere and Persia, we see the wonders of India, and stop in our journey in China, watching the planting, cultivation, gathering and preparation of this drug. As we stop to look we revel in the beauties and marvels of Oriental civilization—but we must go on. The last article in our prescription is Syrup of Wild Cherry.

WILD CHERRY—It sounds like home, it brings us back to America. In a second we cross the Pacific Ocean, and arrive again in our own land, where from the coast of the Atlantic west to the Mississippi this useful tree abounds.

Thus you see, guided by the chart of this little prescription, I have taken you on a trip around the world. But only a hasty trip. I could have stopped for hours at each station and told you about the article that we looked for there. I could have spoken of the discoverers, pioneers, and botanists that discovered the plant, that cultivated it, described it—of the number of chemists that worked for hours, for years, some of them for a lifetime, at the determination of the various active principles of these plants. I could have dwelt on the development of the industries that produce the chemicals; I could have mentioned the

great number of physiologists and medical men that, in thousands and thousands of experiments, by faithful study and work, discovered, described, and determined the action of these drugs on some part of the human system. And then we can go over the greater enterprises from the perscription. Then we have the sugar, from which the syrups are made, reminding us of one of the greatest chemical industries. We need the bottle, the glass, which takes us to another extensive industry. Nor is this all. When a teaspoonful of this medicine is given by a loving mother to her feverish child, what amount of labor and thought does this teaspoonful represent! In every continent of the earth someone had to do some kind of work to contribute to it. From the lowest class of human beings, the coolies in China, to men of the highest intelligence, there is some trace of work in that dose of medicine. Such a thought makes us realize how closely related all men are, how under the influence of higher civilization all mankind approach each other to one large family, and we realize that our ultimate happiness can only lie in steady and patient dissemination of knowledge, that will make all men acquainted with and respect each other, and bring them closer together. Not armies and dreadnaughts, the arresters and destroyers of the achievements of civilization, but mutual respect and friendship will make for our ultimate welfare.

But let us come back to our little prescription and realize that the pharmacist who goes at his work in the right spirit can derive keen enjoyment, unlimited instruction, and entertainment for himself out of his daily task that others call drudgery. To him each bottle is a dear friend, each tincture or elixir is like his life-blood, each package or bottle that he sends out is like a child that he dismisses with the parting thought: Go out into the world; be of some use to someone; do good wherever you can.

¶ You may say that such an ideal conception of a man's daily work is not borne out by the facts and stands in sharp contrast to reality. Let us not argue this case. Consider the spirit of my words,—the spirit of the nobleness of all work. Let not your work become your master—and a heartless master it is that holds you down to lifelong slavery—let your work be your friend, your teacher. There is no work so small, so menial, that does not contain some noble, elevating element.

No matter in what branch of chemistry you may engage in later years, whether you become manufacturer on a large scale or great commercial men who branch out into all parts of the world, and become millionaires, or whether you engage in teaching or pharmacy and remain poor devils as I am, the real satisfaction of your life, the real enjoyment in whatever fate may give you, will consist in the pleasure of doing your work properly and faithfully. And I trust that this one thought, adherence to the work that you find before you, faithfulness in your vocation, will remain with you. Your sphere of influence, whether it is only within your own family and a small circle of friends, or whether you may be destined to become leaders of the masses, will be good and useful if this one thought guides you in all your doings. Do your work right; live for it; love it!

Papers Presented to Local Branches

WHITE PINE BARK OF COMMERCE.*

WILLIAM MANSFIELD.

White pine bark is one of our native drugs which is profitably marketed, as it is a by-product in the preparation of pine timber. At certain times of the year there is quite a demand for the bark, as it is used in the preparation of Syrup of White Pine Compound, N. F.

In the March number of the A. Ph. A. Journal, the Committee on Unofficial Standards gave the proposed standard for white pine bark, which is as follows:

"In flat pieces of very variable size and about 1 to 3 mm. thick; outer surface varying from a pale pinkish white, when fresh, to a light, or rather deep yellowish brown, according to freshness, occasionally with small patches of the gray-brown periderm adhering, more or less fuzzy, and often showing small scattered pits, inner surface either lighter or darker than the outer, finely striate; fracture tough-fibrous, transverse section an outer yellowish and an inner whitish band. Odor slight, terebinthinate. Taste slightly mucilaginous, bitter-sweet and astringent.

"Upon incineration White Pine Bark should yield not more than 2 per cent. of Ash."

After reading the description carefully, I began to study the white pine bark of the market in order to ascertain if it would meet the requirements established. I found that it would do so in nearly every case. One or two lots, however, would not meet the requirements, as the bark was unrossed. In these lots I noticed that the inner surface showed a great many small resin masses while there were scarcely any to be seen on the inner surface of the rossed bark. This led me to examine the cross sections of the two barks. The pharmacognosist divides the bark into three zones. First, the outer bark, consisting of the corky epidermis; second, the middle bark extending from the cork to the beginning of the medullary rays, and third, the inner bark, extending from the beginning of the medullary rays inward. The rossed pine bark usually consists of the inner bark, the outer and middle bark being removed in peeling. The structure of rossed and unrossed bark must, therefore, vary greatly; as well as the nature of its cell contents, and this would seem to have a bearing on its medicinal value. Most of the secretion cavities and cells occur in the outer bark. As these are the cells which secrete the resin, it should follow that a rossed bark would be much lower in resin content. In the description, it states that the bark often shows small scattered pits. It is in these pits or cavities that the oleo-resin is secreted. In peeling the bark the resin is removed even though a portion of the cavity still remains. In the unrossed bark, the epidermis protects these cavities and as the bark dries, the

*Read before the New York Branch April 8.

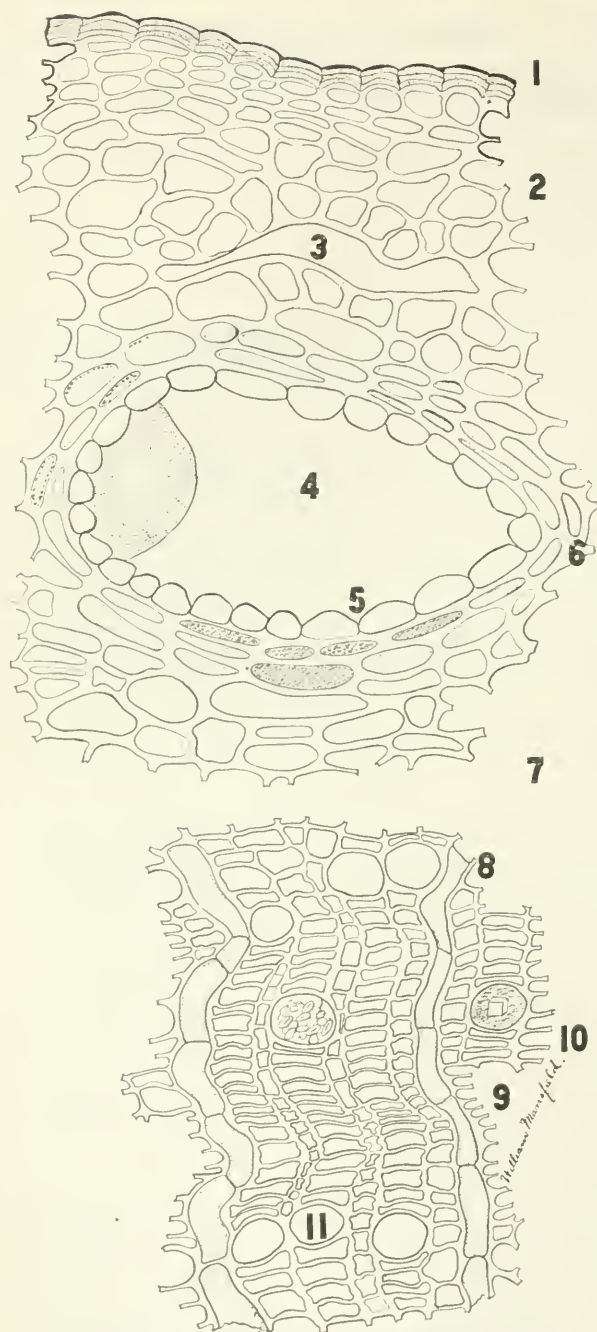


Chart I. Cross-section of Unrossed White Pine Bark.

1. Cork cells of the epidermis.
2. Parenchyma cells filled with chlorophyll.
3. Inter-cellular space.
4. Secretion cavity with resin.
5. Secretion cells.
6. One or more circles of parenchyma filled with chlorophyll.
7. Parenchyma.
8. Medullary rays.
9. Sieve Cells.
10. Sieve Cells.
11. Inner parenchyma cells filled with starch.

only place the evaporation of the oleo-resin can take place is at the edges or on the inner surface, where it usually occurs, owing to the ease with which it can traverse the medullary rays.

As there are no special tannin secretion cells, it would probably follow that a rossed bark would be as rich in tannin as the unrossed bark. If this is so, and it is only the tannin which is desired, in using it in the preparation of Syrup of White Pine Compound, then the rossed and unrossed bark would be equally good; the only advantage being in this case, a saving in the cost of labor, which is a very important item in making a drug commercially profitable. As the resin and tannin content of White Pine Bark is largely a chemistry problem, and just how much, if any, of the constituents enter into the final preparation, is a pharmacy problem, and by far the most important question concerns the therapeutics of Syrup of White Pine Compound: To what extent is its action due? What would be the effects on the system if the active constituents from all the drugs really enter into Syrup of White Pine Compound. The therapeutics of many of the U. S. P. and N. F. preparations offer a fertile field for study. It seem to me a line of investigation which is sadly neglected and which is absolutely necessary in order

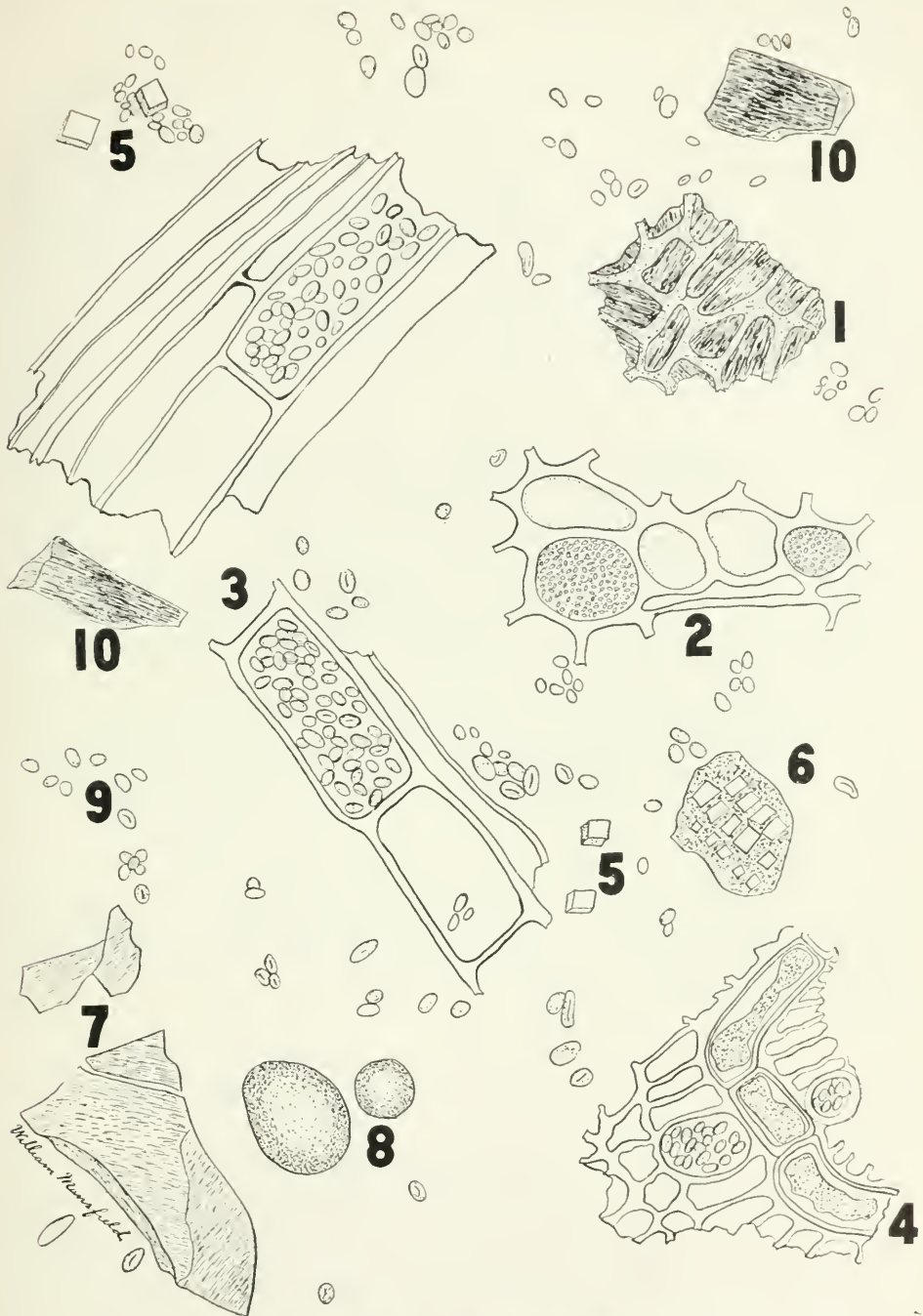


Chart II. Microscopic Elements of White Pine Bark.

1. Surface view of reddish-brown epidermis.
2. Outer transverse parenchyma filled with chlorophyll, and showing an inter-cellular space.
3. Longitudinal parenchyma filled with starch and sieve cells.
4. Transverse view of medullary rays with granular contents, inner cortical parenchyma with starch and sieve cells.
5. Oblique crystals.
6. Part of cell filled with cubical crystals.
7. Resin occurring in angled pieces in a water mount.
8. Globular masses of resin in an alcohol, glycerin and water mount.
9. Starch distributed throughout the field.
10. Reddish masses.

to complete and supplement the work of the chemist-pharmacist and pharmacognosist.

I will concern myself with the pharmacognosy of White Pine Bark. The cross section of the unrossed bark shows the following elements: Several layers of reddish-brown cork cells (1) very narrow, elongated and with thin walls. The outer parenchyma cells (2) vary greatly in size, form and thickness of the walls. The cells beneath the cork are small and often elongated, while those farther inward are often very large and frequently surround large elongated intercellular spaces (3). The secretion cavities (4) occur most abundantly in the middle bark, and the older the bark the larger the cavities. The secretion cells (5) immediately surrounding the secretion cavities are colorless and owing to the lack of pressure on their outer surface, the wall curves inward. Immediately surrounding these secretion cells are two or more rows of parenchyma cells (6) which are always packed with chlorophyll. Immediately inward from these, and extending to the beginning of the medullary rays are the parenchyma (7) which is usually free from chlorophyll, but contains the stored starch. The above elements are usually not found in white pine bark of commerce. The following elements are those which usually occur. The medullary rays (8) are greatly elongated cells and they constitute the wavy lines seen in the cross section. The sieve cells (9 and 10) seem to be of two general sizes, a nearly square cell and an elongated cell. In among the sieve tissues are found parenchyma cells which seem to go on growing even after the sieve cells have become dead and functionless. It is these cells which function as storage cells for crystals, starch, etc.

To a person familiar with the microscopic structure of a bark, there will be little difficulty experienced in identifying it and testing its purity. The epidermis (1) consists of reddish brown masses, irregular in outline. The outer parenchyma cells are of a bright green color owing to the presence of chlorophyll. (The above elements are not usually found in the rossed bark.) The parenchyma (3) with starch usually occurs in longitudinal sections accompanied with sieve cells. Often the tissue separates transversely, showing the medullary rays (4) with their granular cell contents (9) and the inner parenchyma cells filled with starch and the surrounding sieve cells.

The crystals are nearly perfect cubes and occur singly (5) or in groups (6). On the longitudinal section of the bark the crystals occur in parenchyma cells surrounded by a reddish cell content and form parallel rows which are very characteristic. The resin occurs either as white angled fragments (7) in a water mount, or as globular mass (8) or as reddish-brown pieces (10). The starch is very abundant and is distributed through the field. The diagnostic grain is lens-shaped, with a cleft hilum, which is nearly straight, or slightly curved and runs parallel to the long diameter of the grain. The addition of Ferric Chlorid T. S. will show the presence of Tannin, by forming a dark coloration. The identification of the starch is facilitated by the addition of a weak Lugols Solution, which imparts a blue coloration to the starch grain.

COLLEGE OF PHARMACY, COLUMBIA UNIVERSITY, APRIL, 1912.

RESIN CONTENT OF WHITE PINE BARK.*

H. V. ARNY.

At the request of Dr. William Mansfield, Mr. Jeannot Hostmann and the writer assayed samples of rossed and unrossed white pine bark used by Dr. Mansfield in his microscopic examination and furnished by him to the writer. We found the resin assay a more complicated matter than it appeared at first blush, since every suggested solvent was apt to extract bark constituents other than the oleo-resin, and evaporation of the liquid extract to constant weight meant possible loss of the volatile oil. Moreover, the amount of bark placed at our disposal (about 15 gm. of each) was too small to permit of more than a superficial examination.

The most feasible method seemed to be continuous extraction with hot alcohol in a Landsiedl Continuous Extractor and the subsequent precipitation of the resin from the alcoholic solution by pouring it into water. The resulting turbid mixture had to be acidulated before complete precipitation was accomplished.

The precipitate in each case presented a two-fold character. The alcoholic extract obtained from the unrossed bark, yielded considerable sticky oleo-resin, while that from the rossed, gave only a small amount of oleo-resin. Both extracts, however, gave considerable quantities of fawn colored flocculent precipitates.

The total precipitate in each case was dried at a temperature slightly below 100° C. to constant weight with the following results:

Total precipitate,

Unrossed bark	14.8%
Rossed bark	6.2%

Anticipating that the fawn colored matter was a product other than resin, the total precipitate was extracted with ether, in which the fawn colored matter was practically insoluble. The ethereal solutions were then evaporated to constant weight on a steam radiator, with following results:

Ether soluble precipitate,

Unrossed bark	12.9%
Rossed bark	4.3%

The conclusions are that the unrossed bark yields considerably more precipitate (14.8%) and ether soluble resin (12.9%) than does the rossed (6.2% precipitate and 4.3% ether sol. resin).

Pharmaceutically the question arises, which of the constituents of white pine bark—the resin (or oleo-resin), the tannin (9% according to Bastin and Trimble, A. J. P. 68, 37), or the coniferin of other authorities—is its therapeutically active principle.

As the chief use of the bark is in the form of syrup, which would naturally contain scarcely any resin or oleo-resin, the resin content of the bark seems to be of

*Read before the New York Branch, April 8, 1912.

little importance, but, as no reference as to the resin content of the bark seems easily accessible in literature, this crude effort at establishing same, may prove of some service to future investigators, who have sufficient time and material to go into the subject thoroughly.

COLLEGE OF PHARMACY, COLUMBIA UNIVERSITY, April, 1912.

EFFECTS OF SODIUM CHLORIDE, SUGAR OF MILK, CANE SUGAR, DIFFERENT KINDS OF MILK, ETC., ON THE ASSAY OF RENNIN.*

L. H. BERNEGAU AND GEORGE E. EWE.

Out of ten lots of Rennin received and assayed by us during the past twelve months, only three came up to labeled strength in milk coagulating power, namely 1:30,000. One sample assayed less than 1:10,000; one sample assayed only 1:13,000; one 1:15,000; two 1:20,000; one 1:23,000 and one 1:28,000, or 93 per cent. of required strength.

The following method is used by us for the assay of Rennin:

Dissolve 0.1 gm. rennin in water to make 100 cc., by gentle inversion of the bottle containing the rennin and water for about half an hour. Avoid any vigorous shaking which tends to lower the milk coagulating power. (This fact was illustrated in a previous paper by L. H. Bernegau). Take some so-called pepsin bottles and place into each 75 cc. of fresh unpasteurized milk, warm to 40-43° C. and add 2½, 3, 4, 5, and 7½ cc. respectively of the rennin solution. Keep at the same temperature in a water bath and remove each bottle at the end of *exactly* 7½ minutes and note whether or not the milk is coagulated.

2½ cc. indicate a milk coagulating power of.....	1:30,000
3 cc. indicate a milk coagulating power of.....	1:25,000
4 cc. indicate a milk coagulating power of.....	1:18,000
5 cc. indicate a milk coagulating power of.....	1:15,000
7½ cc. indicate a milk coagulating power of.....	1:10,000
etc.	

Limit of accuracy of above method.

We made many experiments to find out the difference between duplicates made with the same rennin solution and the same milk by the above method.

Experiment No. 1 showed a difference between duplicates of 4.7%	} Of total activity of the Rennin.
Experiment No. 2 showed a difference between duplicates of 6.0%	
Experiment No. 3 showed a difference between duplicates of 4.7%	
Experiment No. 4 showed a difference between duplicates of 4.6%	
Experiment No. 5 showed a difference between duplicates of 5.2%	
Experiment No. 6 showed a difference between duplicates of 3.1%	
Average, 4.7%	

Numerous other experiments gave exact duplicates. As the limit of accuracy between duplicates is about 5 per cent. the figures given in the following tables

*Read before the Philadelphia Branch, April 2, 1912.

are within 2.5 per cent. of the exact figures in this sense. When, for example, there is an increase in activity of 26 per cent., this figure may really be 23.5 per cent.

The following experiments were carried out with two samples; No. 1 an European sample and No. 2 a domestic sample. Both were found to contain chlorides and to reduce Fehling's solution. Both came up to standard at the time they were received, but source and standard has nothing to do with our comparative experiments. We only found it interesting to experiment with samples which we knew did not come from the same source. In our tables, therefore, we will use only No. 1 and No. 2, representing the sources mentioned above.

Effect of admixture of Sodium Chloride with the Rennin.

Rennin.	Rennin: NaCl	Increase in Activity.
No. 1.....	1:0	0 (Dupl.)
	1:14	10% (Dupl.)
	1:7	26% (Dupl.)
	1:3	13% (Dupl.)
No. 2.....	1:0	0 (Dupl.)
	1:7	16% (Dupl.)
	1:3	0 (Dupl.)

Conclusions: There seems to be an optimum proportion of NaCl which will give highest milk coagulating power to rennin; above or below this optimum proportion the NaCl apparently lowers its ability to increase the activity of the rennin. This optimum proportion lies around 1:7. Rennin-sodium chloride tablets made in this proportion should be therefore most efficient in milk coagulating power. Blanks run with plain NaCl without the rennin the proportion used in the above experiments had no coagulating effect on the milk after four hours, so that the NaCl has no appreciable effect when used alone.

Effect of admixture of Milk Sugar with the Rennin.

Rennin.	Rennin: Milk Sugar.	Increase in Activity.
No. 1.....	1:0	0 (Dupl.)
	1:14	3 % (Dupl.)
	1:7	17 % (Dupl.)
	1:3	9 % Aver of 3 assays.
No. 2.....	1:0	0 (Dupl.)
	1:7	5.6% (Dupl.)
	1:3	0 (Triplicates.)

Conclusions: Milk sugar also increases the milk coagulating power of Rennin, but not to so great an extent as sodium chloride. There is also an optimum proportion of rennin to milk sugar; this proportion being, like that of sodium chloride, near 1:7.

Effect of admixture of Cane Sugar with the Rennin.

Rennin.	Rennin: Cane Sugar.	Decrease in Activity.
No. 2.....	1:14	16 % Aver. of Dupl.
	1:7	8.6% (Dupl.)
	1:3	4.4% (Dupl.)
	1:0	0 (Dupl.)

Conclusions: Cane sugar mixed with rennin decreases the activity of the rennin apparently in almost direct proportion (within the limits of the above experiments) to the proportion of the cane sugar in the rennin-cane sugar mixture.

Effect of Cane Sugar dissolved in the Milk.

Rennin.	% Cane Sugar in Milk.	Decrease in Activity.
	{ 2.5%	7 %
No. 1.....	{ 5 %	7 %
No. 2.....	{ 2.5%	4.4%
	{ 5 %	16 %

Conclusions: The cane sugar used in sweetening milk when making junket evidently reduces activity of the rennin employed.

Effect of different lots of Unpasteurized Milk.

Milk bo't on morning of 2-7-12.	Rennin {	Assayed 1:36,400	} Difference 35%
Milk bo't on morning of 2-8-12.	No. 1. {	Average of Duplicates.	
Milk bo't on morning of 2-7-12.	Rennin {	Assayed 1:26,800	} 33%
Milk bo't on morning of 2-7-12.		Average of Triplicates.	
Milk bo't on morning of 2-8-12.		Assayed 1:25,000	
Milk bo't on morning of 2-8-12.		Duplicates.	
		Assayed 1:18,800	
		Duplicates.	

Conclusions: Different lots of milk may exert a great influence on the assay of rennin.

Effect of treatment of Pasteurized and Unpasteurized Milk.

Milk.	Assay w/ same rennin.	Difference.
Pasteurized	1:25,000	} 12.5%
Unpasteurized	1:28,125	

Two other samples of rennin gave results between 10-20 per cent. higher with unpasteurized milk than with pasteurized milk. A sample of unpasteurized milk gave 4.7 per cent. (aver. of four experiments) higher after being aged 24 hours at about 5° C.

Conclusions: Unpasteurized milk gives higher results in the assay of rennin than pasteurized milk and the age of the milk also has some effect on the assay.

Rennin Tablets Four lots of old tablets in which sodium chloride was used as a diluent, were tested recently by us to find out if an appreciable deterioration took place. Rennin certainly acts queerly on getting older,—some lots seem to die at a very young age and become inert, while others seem to grow in strength, the older they get. All four lots were tested on the same day (2-6-12) and the same milk was used. All tests were carried out at the same temperature, namely 40-43° C. The results were as follows::

No. 1. One tablet coagulated 1 qt. milk in 10 minutes. (Tested on 9-29-10; 1 tablet required 14 min.) Increase.

No. 2. One tablet coagulated 1 qt. milk in 19 minutes. (Tested on 2-14-11; 1 tablet required 12 min.) Decrease.

No. 3. One tablet coagulated 1 qt. milk in 30 minutes. (Tested on 5-2-11; 1 tablet required 11 min.) Decrease.

No. 4. One tablet coagulated 1 qt. milk in 9 minutes.

This last lot is about seven years old and as seen from this table is today the best of all of them. Unfortunately, we were unable to find the record of the first assay, seven years ago.

As rennin and its preparations are undoubtedly of interest to any pharmacist and physician, we hope that others will take up this subject and report upon it.

ANALYTIC LABORATORY OF THE H. K. MULFORD CO.

THE PHYSICIAN AND THE SCIENTIFIC PHARMACIST.*

DR. E. W. DITTRICH, M. D.Formerly President of the Yorkville Medical Society.

Medicine, or the art of diagnosing and curing disease, has in time become a complicated science. It now comprises so many subdivisions, that various special branches have established themselves, the study of which, however complete their succession may have been, always necessitates a thorough knowledge of its fundamental developing features. Pharmacy, on the other hand, had to develop on totally different lines.

While they both, Medicine and Pharmacy, if I may say so, had the same common source, the former, as it was, developing from the latter in the course of evolution, both mutually profiting from experience and observation, pharmacy did never become an independent art owing to many facts that were detrimental to its development as such. For some of those disciplines which had become integral parts of pharmacy, began to develop independently and formed important scientific branches of their own. This was the case chiefly with Chemistry and Botany; and Pharmacy, their deserted mother science, kept only in touch with its faithless children to that extent which was necessary for its object as an auxiliary discipline to the art of healing.

But it was and will always be an important cultural factor in the successful pursuit of this art.

Appreciating these latter facts, we learn to understand the importance of pharmaceutical science, not only as an auxiliary discipline to our endeavors as physicians, but we are also forced to give it a place as a department *sui generis* in the great realm of hippocratic science. If it be true that some do not want to look at it in this light, and there are still many physicians that are only too ready to adversely criticise the pharmacist as a class, regardless of personality, then some misapprehensions and misunderstandings must surely be existing between these two professions. If this be so, they have existed entirely too long, and it will only be necessary to consider carefully some of the reasons which may be contributory in producing the poor opinion that some physicians entertain of so old and honorable a profession.

Pharmacy as a profession is and must be always carried on on purely scientific lines, but the practical part of it, as you all know, is peculiarly intermingled with commercial interests, features which tend to furnish the cause for estrangement between the two sister professions; although, in my opinion, it would not harm some gentlemen of the medical profession at all to be endowed with some of this commercial instinct.

Secondly: This estrangement, which lately has been kept up by the bugbear stories of counter prescribing and real or imputed substitution, has become

*Read before the New York Branch and the Medical Society of the County of New York, May 7, 1902.

deeper, because many physicians think now that the pharmacist in many cases assumes the rights of the physician in attempting to treat disease.

Thirdly, and this is probably the most potent reason: Pharmaceutical education in this country up to the last decade, was not up to that standard that the prescriber had a right to expect from the man that was called upon to execute his orders. All these features, taken together, have, of course, tended to foster a certain amount of distrust on the part of the physician. I could relate many cases of personal experience with alleged substitutions, which would have influenced me in this manner, if I had not stopped to investigate them thoroughly. Upon investigation, they proved to be based on nothing but malicious statements. Of late great and successful attempts have been made on the part of the scientific pharmacist to change these conditions which were so detrimental to a perfect mutual understanding, and it has been the merit of some gentlemen standing high in both professions to bring on a more effectual understanding, based on a higher scientific training as well as on mutual respect.

The curricula of the present schools of pharmacy, the requirement of a preliminary education, subject to the approval of the board of regents, and, last but not least, the necessity of having graduated from a college of pharmacy before being admitted to the board examinations, are factors that in themselves bear the guaranty of a good and thorough scientific training.

We are therefore justified in considering that pharmacist a desirable representative of his class, in whose laboratory exactitude, reliability and promptness in putting up prescriptions are the chief and prevailing mottoes and who also knows how to combine these with the necessary skill in putting his business on a paying basis. In that way he will not only serve best his own interests and those of his patients, but incidentally also those of their medical advisers.

These are chiefly the gentlemen whom I had in mind when I used the term "scientific pharmacists." We cannot expect every pharmacist to be a learned chemist in the strict meaning of the term, but what we can rightfully expect of every pharmacist, is that he should be a pharmaceutical chemist as well as a thorough connoisseur of drugs and be well versed in the very important chapter of incompatibilities, so that he be able to distinguish between incompatibilities, that were intended and those not intended. In former years I have sometimes seen my intention miscarried, when the pharmacist, or let me say here, the druggist, was unable to make this distinction and hesitated to combine the chemicals that, though they were chemically incompatible, would form the desired remedies by mutual decomposition. On one occasion, I remember, chemicals were strained out of a mixture, which, I will admit, made the same unsightly, yet were the only important remedial agents in it. I want to say here, emphatically, that these occurrences are things of the past. We do not see today any more a perfectly clear mixture when we prescribe Zinc Sulfate and Lead Acetate in distilled water, in which case, formerly, *pharmacia elegans* did get the best of the more practical and useful end of it. Here, I think, is the place to speak of a preparation which, in spite of all new and elegant substitutes, will always hold the fort as one of our most reliable indirect diuretics and mild heart stimulants, namely infusion of

digitalis. The habit of making this important preparation from the fluidextract or from a concentrated stock solution cannot be condemned in strong enough terms. If this were permissible, there would be a method for it laid out in the pharmacopœa, a book which we always should take as our standard. The slovenly and unpharmaceutical habit of preparing this infusion in the manner mentioned will not only result in a poor pharmaceutical product, but would be sufficient to put one on his guard against a dispenser who is satisfied with the exertion of so little pharmaceutical skill. It is needless to add, that only the English leaves, purchased from trustworthy and reliable firms, should be used in the preparations of this infusion. It is evident from this fact alone how important it is for medical gentlemen to deal only with those pharmacists that not only are masters in their profession, but who are also willing to undergo some little inconvenience in order to prepare prescriptions *lege artis*, and who even will make some sacrifices for the benefit of the quality of their pharmaceutical products. I personally know some pharmacists, whom I esteem very highly, that never used up a pound can of digitalis leaves entirely, but when half of the can had been used, threw away the rest. They do the same with spirit of glonoin and other articles which are liable to deteriorate with age. They assure me that, although they carry out this practice, they are able to realize a good profit on their merchandise. This practice is highly to be commended and most decidedly furnishes proof that there are gentlemen in the pharmaceutical profession who besides being thorough scientific pharmacists, would deserve to be distinguished by the honoring epithet "Pharmacien de première class."

It is therefore wrong to condemn the pharmaceutical profession because there are a few evildoers in it. It would be difficult to find any profession or business that is free from these.

Substitution, of course, will be always practiced by them, but let us leave them to the pangs of their own conscience, or, what is still better, to the ever watchful eye of our very efficient board of pharmacy. Indiscriminate counter prescribing, on the other hand, is a matter of vital importance, and it is our duty to meet the druggist who indulges in this practice by seeing that our prescriptions do not find their way into such stores.

But there are two sides to every question, and I personally am able to see the other side of this one, too. Can we blame a druggist that tries to pass some of his preparations on a customer, if he knows that the physician to whom this patient would otherwise go, were going to dispense the medicine himself, thereby depriving him (the druggist) of the legitimate means of making a livelihood? The counterprescribing druggist exposes himself to the just criticism that he assumes the doctor's rights, treating symptomatically ailments of which he does not know anything, while the dispensing physician wrongs his helping hand, the pharmacist, by intruding on the latter's rights, thereby endangering the so important community of interest that should exist between both.

In conclusion I will mention a few points that show how the physician and the scientific pharmacist can be of aid to each other, settling all questions of

common interest in an amicable manner, based on personal acquaintance and mutual respect.

The scientific pharmacist can help the physician :

1. By helping him make his prescriptions more attractive.
2. Informing him of medicines beyond the means of the patient.
3. By calling his attention to substances exploited under several names.
4. By calling his attention to new and eligible forms of remedies.
5. By showing him the Pharmacopœia is sufficient for most prescribing.

The physician can help the pharmacist :

1. By avoiding his prescribing remedies newly exploited but practically old.
2. By instructing him as to the therapeutic value of newer remedies.
3. By avoiding prescribing several forms of the same preparation.
4. By keeping as closely as possible to official remedies and by using pharmacopœal nomenclature.

THE DRUGGIST: WHAT HE HAS TO SAY TO THE PHYSICIAN.*

PETER DIAMOND.

The subject assigned to me in this night's discussions is one of interest, if not of importance; and to me, somewhat embarrassing.

From times immemorial, at their will, almost everybody had something to say to the druggist. The public, the newspapers, the legislators, agitators, reformers and anti-ites all had their turn, but at no time were we asked what we had to say. The physician often took a shot at some of us. He, largely so, looked down upon our colleagues, and in some instances, directly opposed us.

I particularly refer to the State Service Apothecary, whose advancement in rank was opposed by the physicians in the same service.

I will, more or less, admit some of the shortcomings ascribed to us; I will admit of some black sheep in the midst of the great number of pharmacists in this country, but in not any larger proportion than in any other profession.

The pharmacist must necessarily possess a fair average of intelligence or he could not pursue his vocation, and I claim for him intellectual and moral equality with those of most other professions.

And now we are asked what we druggists have to say to the physician. Is it not embarrassing?

I shall endeavor to treat the subject in an impersonal abstract way, and I beg of those who listen to me, to take it in a similar light.

Personally, I do not claim to have come here with absolutely clean hands. I am as much a victim of surrounding circumstances as others of my profession, but, with many others, I wish for and am willing to help make both mine and

*Read before the New York Branch and the Medical Society of the County of New York, May 7, 1902.

your professions as ethical as possible and establish relations between the two professions as friendly as they should be.

The pharmacist is, or should be, the compounder and dispenser of medicines. If he is not entirely that today, it is due to the environment, circumstances, and a social system far beyond his control.

For years he has been, and still is, striving to overcome, or at least check that which is constantly dragging him from his vocation into a vortex of side lines, that make his once drug shop look like anything but the respect-inspiring, clean, orderly pharmacy of Germany, Russia, or many other European countries.

His attention is distracted from his real work and directed to anything in the commercial line that may assist him in holding his own against competitors, whose sole aim is the increase in dividends upon their investment, but who take no pride, have no interest in the pharmaceutical profession itself.

Many of his shortcomings, we cannot but admit, are due to the circumstances, and while striving to eliminate them, we look to the physician for assistance—and assist he can, in many respects.

DISPENSING AND COUNTER-PRESCRIBING.

The question of dispensing by the physician and counter-prescribing by the druggist is of such vast importance to both, it is so complicated, it is so hard to draw the line as to where the right ends and the wrong begins, that the only way to solve it is to entirely discard advice in the drug store; dispensing or furnishing of medicines in the physician's office.

True, the one has a legal right to diagnose, prescribe, dispense and issue a death certificate, while the other's legal status is confined to compounding or dispensing only; nevertheless, from an ethical and economic standpoint, we claim, and many physicians concede, that dispensing by the practitioner is an infringement upon our rights. I am, of course, excluding the country doctor, where conditions make the emergency case imperative.

I am fain to believe, however, that on this score we are almost agreed, and as we, throughout press and associations, are constantly agitating the discontinuance of counter-prescribing, so we expect you to call upon the members of your profession to discontinue dispensing.

NOSTRUMS.

So much has been said on the subject of prescribing patent or proprietary articles, or so-called specialties, that nothing new can probably be added to the arguments advanced. It is, however, so within the province of the subject assigned to me, that it will seem a flagrant omission should I ignore it entirely.

It is, of course, natural to expect that the physician, having diagnosed a case, will prescribe. It is also natural to assume that in prescribing, he will put down the ingredients, carefully figure out the doses of all potent drugs, such as strychnine, codeine, morphine, digitalis, and what else, and having impressed the patient with proper directions and perhaps—having warned him of the careless or greedy druggist, may rightly feel that he has honestly discharged an obligation to the patient, to his profession and to himself. But is it so in all cases? Is it not

true that the physician finds it often more convenient and less troublesome to jot down: "Syr. Codeia" or "Pil. Pasbi" or "New-Nervi York"?

What if he does not know the ingredients or the doses in the preparation used? The detail man has taken care to impress him with the usefulness and harmlessness of them.

Many of those using such nostrums have only a vague idea of its composition. How many physicians can tell the formula of H. V. C. or even of such preparations as A. K.? So we not often see, at times hazardingly, unknowingly, perhaps, prescribed in one recipe A. K. Phenalgin, and Phenacitin, not dreaming that they all contain, principally, the same chemical?

How many are even aware of the exact quantities of a narcotic in such preparations as Glyco-Heroin, Bromidia, Papine, etc.?

You may imagine the predicament of a certain physician who prescribed two ounces of Syr. Cocclana Comp. for an infant about a year old, to be given in doses of one teaspoonful every two hours, when I called him up and informed him that the perscribed syrup contained one-third of a grain of Heroin Hydrochl. to the ounce. In other words, that he ordered one-twenty-fourth of a grain of Heroin to be given to the infant every two hours, and the physician I refer to is usually rather painstaking, intelligent; but the constant grind of the detail men have made him depart from his usual path.

The argument is often advanced by the physician that certain preparations are used by them because of their pleasant taste; they are good to look at, and palatable, many say. Is an argument of that kind a sufficient excuse for blindly prescribing preparations, the composition of which is almost unknown to them? If they were only to take the trouble to study the preparations of the U. S. P. and N. F., they would find numberless preparations just as palatable and just as good to look at, with the formula given in full detail.

The U. S. P. and N. F. preparations are not uniform, many physicians argue. They differ somewhat in color and taste when put up by different druggists. That may be so, but do not the fluidextracts put up by different firms look different and taste different? Are not the elixirs, syrups, liquors put up by the various pharmaceutical houses different in taste and color? And still, how often does the physician specify one or another pharmaceutical house?

The physician forgets that it is an almost physical impossibility for any retail druggist, or for that matter, wholesale druggist, to carry in stock fluidextracts, pills, tablets, elixirs, syrups, etc., of all the leading pharmaceutical houses. He often tempts the druggist to commit a technical wrong—if wrong it be—by specifying the pill of a certain pharmaceutical house.

Is it not more proper—is it not more ethical—is it not more decent to specify the pill the physician desires, permitting the druggist to either make same or dispense that of any reliable house?

Another reason for prescribing specialties or proprietary articles is that many physicians own, by purchase or by gift, stock in chemical companies, which companies, in most instances, are of questionable repute. I charge so, knowingly, for I can convince any fair-minded man, that if not directly unreliable in their

statements, the companies' sole aim is to manufacture as cheaply as possible and dispose of their products as dearly as possible.

My time is limited or I could continue on this subject for a long time. There are other things I desire to mention.

ILLEGIBLE PRESCRIPTIONS.

Has the average physician ever considered the importance of writing prescriptions as legible as possible? Does he realize the errors a quickly hap-hazard, quickly written down recipe may lead to? The difficulties and predicaments it may put the dispenser to?

One cannot, at all times, communicate with the physician, and either you keep the patient under one pretext or another, waiting, or—decipher the best you can.

It is a habit many physicians have acquired that should be stamped out in its inception; that is, at college. Medical students should be impressed with the importance of properly writing prescriptions as well as with the importance of proper diagnosis.

I cannot, in my talk to the physician, before winding up, but say a few words of a habit, inaugurated, it is true, by the druggist, but acquiesced in, and at times encouraged by the physician—the habit of supplying the practitioner with prescription blanks, advertising the druggist furnishing the same, and the habit of sending to the physician useful reminders of the sender.

The use of blanks bearing the name of any druggist is a presumption that the physician favors this one in particular, at least to the laity it seems so.

There is as much wrong in that as there is in sending patients to one particular physician to the exclusion of others.

One would not dream of carrying a druggists' ad on his card—why then on his blanks?

This custom of itself may seem quite harmless, but like all such habits, grows in extravagance until the tokens assume considerable value, becoming a burden to the giver, and to the recipient—well, he cannot ignore it.

While I blame the druggist for primarily creating the habit, still we must remember that production is regulated by the demand or market.

Gentlemen of the Medical Profession, my talk to the physician is for the purpose of arriving at some means of eradicating what we consider improper, unethical, or as being in the path of our friendly relations. You who are striving to be as ethical as possible, you whom this talk does not reach at all—of you we expect and ask the assistance necessary to reach those who take no interest in either medical or pharmaceutical movements; those who remain in their offices or in their drug stores; those who have never lifted a hand to better the medical profession or pharmacy.

And the only way to do the work and to do it properly is that you, gentlemen, should take an active hand in the matter, and through publicity in the medical press and in the pharmaceutical press, awaken those who, while asleep, continually complain.

I wish to reiterate again that I am not preaching. That I merely express an

honest desire to better myself and help my colleagues to better themselves and that I call upon you to do likewise in your profession.

I cannot pass over in silence the fact that many physicians, today, ignore the individual corner drug store—that many are dazzled by the brilliant displays of the corporation stores, either not knowing or not desiring to know, that it is mainly these gigantic combinations that reduce the individual druggist to the necessity of forgetting his professional ethics in his fight for existence.

I regret to say that many physicians today direct their patients to the corporation stores, in whose windows you may see, alongside with a biological display, several baskets of fresh-laid eggs at the rate of twenty-three for a quarter.

THE ABILITIES OF THE PHARMACIST.*

G. C. DIEKMAN, PHARM. D.

In speaking of the abilities of the Pharmacist, I will refer only to such of his or her abilities (for we have quite a number of women who have taken up the study and practice of Pharmacy), as are of particular interest to the physician who is critical as to the manner in which the prescriptions he writes are compounded.

In a large city like ours it is quite natural that there should be some persons engaged in the practice of pharmacy who do not meet the expectations of the physician in this regard. In most cases this may be attributed to carelessness, but I dare say that in some cases a lack of technical knowledge and skill is the source of the trouble.

It must be remembered that it is only in recent years that the state has interested itself in the matter of the practice of pharmacy, as far as the preliminary education of the candidate and his compulsory attendance upon the courses of study of a pharmacy school is concerned.

Prior to the year of 1898, a license to practice pharmacy in the City of New York was obtainable in one of a number of ways, as follows:

- (a) Registration upon the Diploma of a Medical school.
- (b) Registration upon the Diploma of a Pharmacy school.
- (c) Registration upon a License to practice Pharmacy, issued by the Board of Pharmacy of another state.
- (d) Registration obtained by passing a satisfactory examination before any of the Boards of Pharmacy of this state, of which there were four, namely, the New York City Board of Pharmacy, the Kings County Board of Pharmacy, the Erie County Board of Pharmacy, the State Board of Pharmacy.

In the first three instances the registration was obtainable without the formality of passing an examination. All applicants for registration were required to be at least 21 years old, and excepting in the first instance were required to furnish evidence of having had at least four years' experience in a place where drugs and medicines were sold and where physicians' prescriptions were compounded.

*Read before the New York Branch and the Medical Society of the County of New York, May 1, 1902.

It will be seen that neither the preliminary education of the applicant nor attendance and graduation from the course of studies of a College of Pharmacy were factors.

After January 1, 1898, and prior to January 1, 1905, all applicants to practice pharmacy were required to pass an examination before the Board of Pharmacy, but the applicant was still not required to furnish evidence of preliminary education, nor was graduation from a reputable college of pharmacy a prerequisite to examination.

Owing to the comparative ease with which a license to practice pharmacy was obtainable, many persons unfitted by habit or lack of preliminary education were tempted to take up the practice of pharmacy.

Many physicians obtained a license to practice pharmacy upon their medical diplomas, prior to January 1, 1898. It is not claimed that there were unfitted by lack of preliminary education, but it is claimed that they did not possess the necessary practical experience to successfully practice pharmacy.

The educated pharmacist, at an early stage, recognized the dangers arising from these lax conditions, not only to himself, but to the physician and public as well, and set about to provide a proper remedy. This remedy was found in the enactment of legislation requiring that all persons desiring to practice pharmacy must show evidence of possessing the necessary preliminary education, and must have been graduated from the course of studies of a recognized school of pharmacy.

For the enactment of these laws, regulating the practice of pharmacy in these two important particulars, the pharmacist is solely responsible, and he should be given the entire credit. It was through the efforts of individuals, supplemented by the State Pharmaceutical Association, that these laws, safeguarding the practice of pharmacy for the protection of the public, were enacted.

The requirements which the state now imposes upon all such as desire to enter upon the study and practice of pharmacy are defined in Section 233 of the Public Health Law, and briefly are as follows:

Satisfactory evidence verified by oath shall be required by the Regents of all candidates for admission to the examinations.

Pharmacist—They shall admit to the examination for pharmacist any candidate that pays a fee of \$10, and,

1. Is more than 21 years of age.
2. Is of good moral character.
3. Had prior to beginning the first year of study in the school fifteen counts or the equivalent.
4. Has studied pharmacology as outlined in the syllabus not less than two years in a school.
5. Has either received the diploma of graduate in pharmacy or equivalent degree from a school, or a license to practice pharmacology in some foreign country registered as meeting the minimum requirements of this article. The diploma of graduate in pharmacy or equivalent degree shall not be conferred on any one that did not file with the school at matriculation the pharmacy student certificate required above.
6. Has had four years' experience in a registered pharmacy, one year of which experience within five years of the date of application must have been in a pharmacy of the United States under the personal supervision of a pharmacist.

The requirement of fifteen counts before admission is not very high, but it has had the effect of bringing a much better class of men to the pharmacy schools, and will no doubt, just as soon as conditions warrant it, be materially raised.

All colleges of pharmacy in this state are now operating under supervision of the State Education Department, and each is required to give a course of study, which in duration and quality conforms with that prescribed in the Pharmaceutical Syllabus.

The State Education Department, before a college can become registered as meeting the minimum requirements, requires the following:

- (a) The value of apparatus and equipment shall not be less than \$5,000.
- (b) Not less than three professors shall be employed regularly in giving instruction.
- (c) Practical work shall be required in not less than three laboratory courses, including chemistry, pharmacy and materia medica.
- (d) A two-year course of instruction shall be afforded.
- (e) A minimum of recitation and laboratory hours shall be required of pharmacy schools as follows:

Session.	Recitation.	Laboratory.	Total.
1906-7	320	430	750
1907-8	385	515	900
1908-9	430	570	7000
1909-10	500	600	1100

It will thus be seen that 600 out of every 1100 hours of instruction are devoted to laboratory work. While the above represents the requirements at present imposed upon the registered schools by the State Education Department, the schools of this state exceed these requirements in every instance.

Manufacturing Pharmacy, which deals with the manufacture of galenical preparations, and Dispensing Pharmacy, which deals with the preparation and compounding of medicines, formulas and prescriptions, are important subjects of instruction. Analytical Chemistry, in so far as it relates to the recognition and detection of substances and establishes the presence of impurities or adulterations, and Microscopical and Commercial Pharmacy, dealing with the recognition of drugs and drug powders and their adulterants, are other important laboratory subjects.

Students are not permitted to graduate unless they have shown marked proficiency in their work, more especially so in the laboratory subjects.

In the work of the Dispensing Laboratory the student is enjoined to be accurate above all, not to use *about* such a quantity, but to use at all times *exact* quantities. Furthermore, he is impressed with the absolute necessity to at all times dispense only such articles as are wanted by the physician. The pharmacist has no right to delegate unto himself the liberty to deviate from the terms of the prescription or order, excepting with the express consent of the physician. Every pharmacist worthy of the name will uphold and subscribe to this principle and will assist the physician in seeing to it that it is strictly adhered to.

Violations of this principle should be brought to the attention of the proper authorities and redress will follow promptly. The honest pharmacist, and he constitutes by far the largest number of the profession, suffers quite as much from

the practice of substitution as do the physician and the public, and is just as anxious and desirous to have the evil eradicated.

In the subject of Manufacturing Pharmacy, the student is taught to properly prepare the different classes of galenical preparations, such as Tinctures, Fluid-extracts, Elixirs, Emulsions, Pills (with their coating), Suppositories, vaginal, rectal and urethral, Ampulles, Tablet Titurates, Compressed Tablets, Ointments, Cerates, Liniments, Cachets, Wafers, etc.

The up-to-date pharmacist is prepared to furnish any pharmacopœial or National Formulary preparation of standard strength and purity, or to furnish and prepare any other formula which the physician may desire to have made. Contrary to the idea held by many, he is able to coat pills with Keratin or Gelatin, or to coat them with Gold or Silver Leaf or Tolu, or any other coating required by the physician. The many advantages possessed by a freshly made and freshly coated pill mass are obvious.

The preparations on exhibition here this evening are a fair sample of what can be done in the line of manufacturing pharmacy by the average pharmacist of today. The quality of these exhibits is by no means the exception, but rather the rule.

I would not have it understood that only the graduates of the present day possess the ability to properly compound and dispense. Many of my brethren in pharmacy who do not possess all the advantages of a preliminary education, are among our best and most accurate workers, they having received a most practical training in the different establishments where apprenticed and employed. Then again we have many of our pharmacists who have received a most excellent education abroad in some of the best Universities.

Then again, it must be remembered that many persons now practicing pharmacy successfully, judged from a professional and scientific standpoint, are graduates of colleges of pharmacy, before such time when attendance upon the studies of a college of pharmacy became compulsory. The list of graduates of the schools of pharmacy of this state will bear evidence of the fact that very many young men did not avail themselves of the "short cut" via the Board of Pharmacy, but attended a school of pharmacy and graduated therefrom.

In order to test the ability of the graduate in Pharmacy and to make certain that the college has not conferred the degree of Ph. G., or other degree, upon anyone unworthy, the state requires that before one may legally enter upon the practice of pharmacy in this state, he or she must pass the examinations prescribed by the State Education Department, through its State Board of Pharmacy.

In these examinations the practical ability of the candidate is thoroughly tested, as will be evidenced by the following rule of the State Board of Pharmacy, relating to practical work:

PRACTICAL EXAMINATIONS.

Rule 22 states as follows:

These shall consist of the manufacture of:

Two galenicals.

The dispensing of three prescriptions, and

The testing of two substances for identity or impurity.

In the practical examination ten samples shall be submitted for identity, which

shall be of pharmacopœial or National Formulary origin, five of which shall be crude drugs, and five shall be chemicals or galenicals.

In connection with the matter of these practical examinations, I beg to be permitted to bring before you examples of some of the exercises actually given, as follows:

Manufacturing—

Basham's Mixture	250 cc.
Emulsion of Asafoetida	100 cc.
Unguentum Sulphuris	15 gm.
Donovan's Solution	25 cc.
Pills of Aloes and Mastic.....	No. xx
Chalk Mixture	25 cc.
Ointment of Iodine	10 gm.
Triplex Pills	No. x
Zinc Paste (Lassar)	25 gm.
Tincture of Nux Vomica.....	50 cc.

Dispensing—

R

Sodium Salicylate	8.0
Sodium Bicarbonate	5.8
Glycerin	20.0
Distilled Water, q. s.	60.0

M. s. a.

R

Phenyl Salicylate	0.3
Castor Oil	0.3

Misce,

ft. caps. d. t. d. No. viii.

R

Tannic Acid	1.0
Powdered Opium	0.2
Cacao Butter, q. s.	

Misce,

ft. suppos. No. vi.

R

Terpin Hydrate	6.0
Glycerin,	
Syrup of Wild Cherry, āā	20.0
Powdered Acacia, q. s.	
Distilled Water, ad.	90.0

Misce,

ft. emulsio.

R

Silver Nitrate	gr. 1/10
Kaolin,	
Petrolatum, āā q. s.	

Misce,

ft. pil. No. xii.

R

Ichthyol	2.0
Cacao Butter, q. s.	

Misce,

ft. globuli No. vi.

R	Zinc Sulphate, Sulphurated Potash, āā	4.0
	Rose Water, q. s. ad. Misce, ft. lotio.	
R	Red Iodide of Mercury..... Sugar of Milk, q. s. Misce, ft. d. t. d. tabellae No. 1.	0.01
R	Cod Liver Oil..... Acacia, Sugar, āā q. s. Distilled Water, q. s. ad. Misce, ft. s. a.	25.0 0.50
R	Menthol Camphor Liquid Petrolatum, ad. Misce, Sig. Use as a spray.	gr. v gr. x oz. ii
R	Yellow Oxide of Mercury..... Wool fat, White Petrolatum, āā	0.8 4.0
	Misce, ft. unguentum.	
R	Terpin Hydrate Glycerin Elixir of Orange, q. s. ad. Sig.	oz. ss oz. iss oz. iv
R	Ammoniac Paregoric Distilled Water	4.0 8.0 100.0
	Misce, ft. emulsio.	
R	Tannate of Mercury Misce, ft. tabellae. No. xxiv. Sig. Capiat unam pro re nata. (Translate into English and write upon label.)	0.1
R	Extract of Belladonna..... Thymol Iodide Cacao Butter, q. s. Misce, ft. suppos. d. t. d. No. vi. Sig. Unum omni tertia hora. (Translate into English and write upon label.)	0.02 0.06

Test the following:

- (a) Potassium Iodide for Iodate.
- (b) Potassium Citrate for Tartrate.

- (a) Bismuth Subnitrate for presence of Carbonate and insoluble foreign salts.
- (b) Potassium Bromide for Bromate.

- (a) Tannic Acid for Dextrose and Resins.
- (b) Menthol for presence of Thymol.

- (a) Borax for presence of Carbonate or Bicarbonate.
- (b) Cream of Tartar for presence of Starch or other insoluble matter.

The results of the practical examinations, that is, the work turned out by the candidates, is very gratifying and proves that they are highly proficient in this branch of their study.

If time permitted I should like to dwell in more detail upon other factors tending to prove the ability of the pharmacist, such as a more detailed account of the college courses and a more thorough analysis of the State Board of Pharmacy examinations, and I trust that in the discussion which is to follow, such points as I may have omitted, or others which I may have treated lightly, will receive attention.

In closing, I say without hesitation that the up-to-date pharmacist possesses a rare degree of ability, for which he is not commonly given credit, except by the few, and I trust that the practicing physician will more often give these pharmacists an opportunity to display and prove their abilities.

SOME OF THE GOOD THINGS OF THE NATIONAL FORMULARY.*

LOUIS SAALBACH, PHARM. D.

The N. F. as a handbook is not properly appreciated by the average pharmacist. It is full of good things from a pharmaceutical, therapeutical and commercial standpoint. Within its pages may be found formulas which might pave the way for future fortunes, if one was inclined to devote his life to the chase of the elusive dollar,—formulas which will produce preparations whose prototypes now grace the shelves of the average drugstore in endless variety, with fanciful trade names and literature descanting upon the virtues, both real and imaginary, which the component parts of the mixture are supposed to possess. And why should it be necessary to pay one's money into the already overloaded coffers of the pharmaceutical houses? Is it not better pharmacy to produce a preparation which we know has the substances, or the active constituents which are implied by the name under which it is known? In every instance such preparations may

*Read before the Pittsburgh Branch.

be produced by even an average pharmacist at a price considerably lower than that of those whose merits are made known to the physician by that bugbear of pharmacy, the "detail man." Do a little detailing yourselves, and you will be surprised to see how rapidly a physician will be converted to ethical preparations.

To name all of the preparations of the N. F. which might be designated as good things would require the majority of the titles in the book. It is not reasonable to suppose that all preparations can be made to go in every locality. Some stores dispense large quantities of emulsions, elixirs, etc., while in other places their sale is in very limited quantities only; but in every instance some formula or formulas may be found which would prove veritable gold mines if properly exploited.

The writer knows of one store in which a single quart of Alkaline Antiseptic N. F. was prepared and shown to a number of physicians who had been in the habit of prescribing an overpriced proprietary article having essentially the same composition, and in every instance they have been converted to the use of the ethical preparation, the one of known composition which produced the results which one might expect from such a solution of antiseptic agents. The pharmacist here referred to now makes this preparation several gallons at a time, sells it at a price much lower than he would be compelled to ask for the overpriced proprietary, the physician is satisfied, as is also the patient, and a larger profit is found in the cash register of the pharmacist.

The detail man, when he sees a physician, usually dwells long on the beauty of his specialty. No doubt a "thing of beauty is a joy forever," and when you begin as a pharmacist to practise your real profession, instead of devoting most of your attention to selling patent medicines at cut prices, see that your preparation will have a beauty that will appeal to both physician and laity. This, of course, requires a knowledge of the technique of pharmacy; filtration, and clarification by proper means, for without beauty as one of the attributes of your preparations you cannot hope to compete successfully with those who have made the study of beauty an art in itself.

The "Petrox line" of the N. F. forms a class of preparations which can be made into profitable specialties. *Petrolatum Saponatum Liquidum*, as the base of these preparations is designated, is a clear pale yellow transparent solution of liquid petrolatum in ammonia soap (oleo acid and spirit of ammonia). It is a solvent for iodine, methyl salicylate, ichthyol, guaiacol and many other substances. It has the peculiar property of forming a permanent emulsion with water, a fact which is made use of in the manufacture of a well known corn cure. In the proprietary field we find its prototype under the title "Vasogen," which is the name under which the article made on the other side of the Atlantic is marketed, and under various other titles when produced by the American manufacturers.

The imported article with most of its medications costs about thirty (30) cents an ounce, while the American manufacturers content themselves with a price of about eleven (11) cents an ounce. Those containing various proportions of iodine are the most expensive to produce; and the one containing 10 per cent. of iodine can be made by the pharmacist who buys his goods in ordinary jobbing quantities, for about sixty (60) cents a pound, which is less than four (4) cents an ounce.

Other medications and those containing iodine in lesser quantities can be made correspondingly cheaper. Quite a saving, and a saving which is accomplished at the expense of a little pharmaceutical skill! And it will not take long to convince the physician of the wisdom of prescribing the N. F. preparation on account of the monetary saving to his patient, if for no other reason.

The elixirs are too numerous to mention. Suffice it to say that not less than 50 per cent. of a saving is a low estimate on those elixirs which are used to a comparatively large extent. Among these may be mentioned Elixir of Terpin Hydrate and Codeine, and Elixir Terpin Hydrate with Heroin. Even at the present high price of the alkaloids which enter into these preparations they can be made for about fifty (50) cents a pint for the former and a very little more for the latter. While to buy them at the present time under the label of any house that may be considered reliable will cost over a dollar a pint.

The Elixir of Glycerphosphates of Lime and Soda costs about eighty (80) cents a pint to buy and less than half that to make.

Oil of Mullein is a commercial article sold at a ridiculously high price. The N. F. does not mention this preparation specifically, but it does give a general formula for infused oils. Oil of mullein costs to buy forty-five (45) cents an ounce; it can be produced for about that price per pound.

Among the syrups may be mentioned Compound Syrup of White Pine. This can usually be purchased cheaper than it can be made; but such articles when compared with those of your own manufacture usually suffer by such comparison. The cheaper varieties are frequently made with molasses and readily ferment. It might be well to mention in passing, that when you compare cost of manufacture, with published quotations, one must always choose the highest priced one as that is the one most liable to be up to standard. Low priced pharmaceuticals, especially when priced lower than the cost at which they can be produced by the pharmacist, should always be looked upon with suspicion, as you never get more than you pay for; frequently much less.

The Syrup of Hypophosphite of Soda of a well-known make, crystal in its transparency, costs eighty (80) cents a pint; it can be made by the pharmacist for about fifteen (15) cents a pint plus a little time and care in the making. He can produce it just as transparent, just as colorless, if he makes his syrup by cold percolation, using pure sugar or rock candy and distilled water.

Milk of Magnesia when purchased under its trade name, costs about thirty-five (35) cents for a ten-ounce bottle, or when purchased in three-pine bottles, about forty-two (42) cents a pint, while it can be made for about three (3) cents a pint. How is that for a money maker?

Among the dry substances may be mentioned Caffeine and Sodium Benzoate and Caffeine and Sodium Salicylate. Contrary to popular opinion these are not definite chemical substances, but are mixtures of caffein with the respective sodium salts, intimately mixed and made into a paste with alcohol, then dried and pulverized. Caffeine is not very soluble in water, but is soluble in solutions of various substances. These compounds (?) are soluble. They are quoted at forty (40) and forty-five (45) cents an ounce. If the pharmacist buys his chemicals only in ounce lots, these can be made for twenty-two (22) and twenty-three (23) cents

an ounce, and if your chemicals are purchased by the pound they can be produced for less than fifteen (15) cents an ounce.

The topic is not exhausted, the most popular ones have not even been mentioned, but a sufficient number have probably been mentioned to prove that the N. F. is a vast storehouse of "Good Things."

WHY SOME DRUGGISTS DON'T MAKE MORE MONEY.*

HARRY B. MASON,

Editor of the *Bulletin of Pharmacy*.

In an address which I have recently prepared at the request of another association, but which has not yet been delivered. I have shown in detail how strikingly at variance druggists are in the incomes derived from their stores. I have presented the actual facts about twenty-five druggists who are scattered in different sections, and who therefore represent the average conditions as they are found over the country. The percentage expense of these men run from 18 to 35! Their percentage of gross profit runs from 31 to 51! Often one man realizes a total income as large as another whose volume of business is nearly twice as great!

Now why do these discrepancies exist? Why does it cost some men so much more than it does others to do business? Why do some men realize a profit so much less than others? Why does one druggist make so much more than his neighbor on a business of exactly the same size?

The answer to all these questions is simple. Locality and environment have something to do with the problem, it is true, but in the last analysis, and in the great majority of instances, the fundamental reason is that some druggists are poor business men—that's all. They don't study the game. They haven't mastered the rules. They aren't skillful in playing their cards, and, worse yet, they make one blunder after another without ever knowing it.

Now, what are some of these blunders?

1. *They don't keep business accounts.* This is the day of science in commercial operations, when every large business house, in whatever line of trade, is making a close study of business economics, and yet many druggists are nevertheless following the good old-fashioned method, or lack of method, of spending what accumulates in the bank account and fancying that it represents net profits. Hundreds of such men have discovered when it was too late that they were eating up their principal without knowing it, and that accumulated dead stock, decreasing inventories, and bad book accounts had cut into their imagined profits so far as almost to destroy them entirely. The sheriff has had to come along and close them up before they tumble to the situation. A druggist who does not keep

* Address, delivered by invitation, before the Chicago Branch of the American Pharmaceutical Association, May 21, 1912.

careful business records is not in position to know anything at all about the amount of money he is actually making. He is simply asleep at the switch.

2. *They don't take inventories.* The druggist who does keep business records, but who fails to supplement them with annual inventories, isn't much better off. In Philadelphia not long ago two brothers bought a store which had previously enjoyed a very good trade, and which was pretty well stocked. The first year the new owners thought they were making all kinds of money. They increased their living expenses and plumed themselves with the thought that they had finally landed on their feet. Over a year went by, perhaps indeed two years, before it began to dawn on them that they had been gradually decreasing the stock in the store, and that much of the money which they thought they had been making as profit was literally taken out of their capital. An inventory would have prevented them from making this mistake.

A druggist in Missouri, who submitted his business statement to us for two or three years in succession, was finally induced to begin invoicing his stock annually. What was the result? He discovered the very first year that his assets increased to the extent of \$1,600. If he had taken no inventory, if he had based his calculations upon purchases and sales alone, his figures would have been grossly inaccurate. To be sure this particular druggist would have erred on the safe side, but the very next year the situation might have been approximately reversed.

More striking yet was the case of an Arizona drug firm, from which we received a statement indicating net profits during the year of \$1,256.31. The inventory had been taken, but it had not been figured up and compared with that of the year before. When we received the inventory figures for both years, and carefully went over the entire statement again, we found that this Arizona firm, instead of making a net profit of \$1,256.31 during the year, had actually lost \$716.60!

Instances like these might be multiplied—but what's the use! As I have said on other occasions, I have been brought in contact with numerous cases where the inventory figures have disclosed differences in the value of the stock to the extent of anywhere from \$200 to \$2,000, according to the size of the store and the nature of the circumstances. The stock in any store is constantly shifting; the prices are forever fluctuating; the fixtures, and particularly the soda fountain and its appurtenances, are always undergoing depreciation, and the druggist who is not aware of the exact nature and extent of these changes is not in position to know where he stands. He may fancy his percentage of gross profit to be 40, when in fact it is only 30, and he may consequently be losing money on many transactions which he fondly believes are yielding him good returns.

3. *They don't know how to figure profits.* There are many druggists who do keep business records, and also take inventories, but who blunder strangely in the calculation of profits. A very common mistake is to figure the percentage expense of doing business on the volume of sales, which is right, and then to figure the profit, not in the same way on the selling price, but *on the cost*. It is true that ordinarily, in every day language, profit estimates are based on the cost price.

This is the method we are taught in school, and it is the method most frequently met with in the advertising announcements of manufactures. A manufacturer, for instance, who sells you an article at \$1.00, the retail price of which is \$1.75, will tell you that you are making 75 per cent. profit. This is legitimate and right, but the wise merchant must thoroughly realize under such circumstances that *he is considering a profit based solely on cost*, and when he comes to apply the figures in his own business, *he must understand the necessity of converting them to the other system and basing them on the selling price*.

Expenses are nearly always estimated from sales—this is almost a universal custom. If, therefore, the profits are to be compared with the expenses, they must both be figured by the same method. Suppose you pay \$1.00 for a certain product and you desire to make 35 per cent. on it gross. It costs you 25 per cent., we may assume, to do business. You want to make a 10 per cent. net profit beyond that for yourself. Very well, then, what should the selling price be on this article which costs you \$1.00, and on which you want to make a gross profit of 35 per cent.? If you make the common mistake of basing this 35 per cent. on the *cost* price you will sell the article for \$1.35, but if you do let us see how you will come out. It will cost you, as we have already assumed, 25 per cent. of the *selling* price to handle the article. Now 25 per cent. of \$1.35, the price you place on the product, is 34.75 cents, so that you are selling for \$1.35 an article which cost you \$1.34 $\frac{3}{4}$, and while you flatter yourself that you are making a net profit of 10 per cent., you are practically breaking even on the transaction!

There are hundreds of merchants—perhaps thousands of them—who are figuring their profits in this erroneous manner. Some months ago the Burroughs Adding Machine Company published an advertisement in one of the national magazines requesting answers to the following question: "A certain article costs \$1.00 wholesale. What will it have to be sold for to allow a net profit of 10 per cent., after allowing 22 per cent. for the cost of doing business?" Something like 1,000 replies were received, of which 750 were wrong! The answers ranged all the way from \$1.10 to \$1.60. The majority gave the selling price as \$1.32, notwithstanding the fact that an explanation was printed at the bottom of the advertisement declaring this answer to be incorrect. The very common mistake was made by these men of basing their percentage expense upon the selling price, their percentage of profit on the cost price, and expecting they would get accurate results. This was the whole source of the trouble.

Here is the proper way to tackle a problem of this character: The article costs \$1.00. Your cost of doing business is 22 per cent., and you want to make a net profit beyond that of 10 per cent.—a total of 32 per cent. The cost figure of \$1.00, therefore, represents 68 per cent. of the final selling price. Is this perfectly clear? Suppose, again, your expense is 40 per cent., and you want to make a net profit of 10 per cent. You would then have to realize a total profit on the selling price of 50 per cent. Now considering 100 per cent. as the final price you get, and subtracting 50 per cent. of this for profit, you have left a residuum of 50 per cent. for cost, and the \$1.00 which you pay for the article therefore represents 50 per cent. of your selling price. You must consequently

double the cost and sell the article for \$2.00 if you want to realize your 40 per cent. of expense and your 10 per cent. of net profit.

Reverting now to the first example which I mentioned, that of an article which costs \$1.00, and on which it is desired to make 35 per cent. gross, it may be seen right away that the cost is 65 per cent. of the desired selling price. Your problem may then be stated as follows:

$$\text{\$1.00} : 65 :: X : 100$$

and the answer is \$1.54. Instead, therefore, of selling the article for \$1.35, you sell it for 19 cents beyond that. And this 19 cents means just the difference between making money and losing it. It means the difference between figuring profits correctly and figuring them incorrectly. It means the difference between ignorance and wisdom.

In this connection a few rules may be of assistance. In order to make a profit of $16\frac{2}{3}$ per cent. of the sale price, add 20 per cent. to the cost; for a 20-per-cent. profit add 25 per cent.; for a 25-per-cent. profit add $33\frac{1}{3}$ per cent.; for a $33\frac{1}{3}$ -per. cent profit add 50 per cent.; for a 40-per cent profit add 67 per cent.; for a 50-per-cent. profit add 100 per cent.

4. *They lose money without knowing it.* Partly because of the inaccurate method of figuring profits, which I have just been considering, and partly because department records are not kept, many druggists fail to realize a profit on some of their goods. It is pretty well known that patent medicines, for instance, bought at 68 cents and sold at 80 or 85 cents, very frequently fail to reimburse the druggist even for his cost of doing business, to say nothing of yielding net profits. But it is less frequently known that sometimes even the candy and cigar departments are poor profit makers.

Some years ago we had a statement from a druggist in the West whose annual business amounted to a little over \$16,000. He kept careful department records and he found that his annual soda sales were nearly \$4,000, his cigar sales over \$6,000, and his candy sales something like \$1,600. The soda business yielded him a gross profit of 35 per cent., the cigar business 16 per cent., and the candy business 25 per cent. Now his percentage expense was 28, and it was even 25 when, for purposes of calculation purely, his own salary as proprietor had been eliminated. He found, therefore, that he was losing money on his cigar business. Without considering his own salary at all as part of his expense, he was still losing 7 per cent., failing by this margin to make any profit whatever toward his own living, letting alone the question of surplus profits. Even his candy business, netting a profit of 25 per cent., lost money for him. It paid a little toward his salary, it is true, but it failed to measure up to his total real expense of 28 per cent.

I haven't any doubt at all that much the same thing would be true of many drug stores throughout the country. It doesn't follow, however, that because a given line is failing to yield adequate profits, it should be thrown overboard. When I read a paper on this subject before the Michigan State Pharmaceutical Association last year I was taken severely to task by one or two speakers who misinterpreted

my position. They assumed my argument to be that goods which didn't yield a profit shouldn't be carried in stock. They declared with perfect truth that it costs more to sell some goods than it does others. A patent medicine, for instance, which can be quickly wrapped and passed out over the counter can probably be handled for one-third the expense of a prescription. Much the same thing is true of cigars, which are sold with a good deal of rapidity. It is therefore scarcely fair to charge up against such things the average percentage expense of the whole business.

Furthermore, some things have to be carried even if they do lose money. This is noticeably true of patent medicines. It may even be true with cigars and candy, for if you throw out a given department, and put nothing else in its place, you are reducing your volume of sales and thereby increasing your volume of expense. You are therefore jumping from the frying pan into the fire. Charles H. McConnell, proprietor of the Economical Drug Store in this city, whose daily sales exceed a thousand dollars, found many years ago that his soda and cigar departments were actually losing money for him, and he promptly abandoned them. But it was possible for this aggressive man, with a fine down-town location, to take a radical step of this kind when it is frequently not possible for a small druggist in an outlying suburb. Mr. McConnell was able to keep up and even increase his volume of sales by a more energetic drive on other features of his business, but this the small druggist cannot always do.

Someone might reply, then, what's the use of all this talk if we must keep our departments anyway? A lot of use! Every man ought to know the facts about his business. In the first place, if he finds that his candy department isn't yielding adequate profits, he can change the selling prices, or the character of the goods, in such manner as to come out whole on the business, and he can perhaps find leaks and stop them up. The same thing is true to a limited extent of the cigar department. In the second place, if a druggist realizes that he is making a low profit on a good many things in his store, he then understands the vital necessity of putting in such additional lines, and of getting such increased profits elsewhere, as will bring up his *general average* of profit. It must be obvious to every merchant that as *few* goods as possible should be sold at a gross profit below the percentage expense, and as *many* as possible above it. By no other rule can a satisfactory average be yielded. If it is necessary to carry a lot of stuff that pays indifferently, the thing to do is to expend a little gray matter in planning to put in other things that will pay handsomely and bring up the average.

5. *They don't keep the percentage of expense and the percentage of gross profit far enough apart.* This shortcoming grows out of what has been said already. I found from the statements of the 25 druggists to whom reference has been made that the average percentage of expense was $24\frac{1}{2}$, and the average percentage of gross profit $38\frac{2}{3}$. This means, in round numbers, an average *net* profit of 14 per cent. Every druggist should strive to keep his percentage of expense and his percentage of gross profit this distance apart from one another. Make your business yield 14 per cent. net on the average if you can. Hold this up to yourself as an eminently attainable ideal and strive in every way to realize

it. Others have done it—you can. Don't be satisfied with anything less. If you are, then you fall to this extent below the general average reached by druggists throughout the country.

It is my conviction that the net profit ought never to fall below 10 per cent. at the worst. Anything between this figure and the general average of 14 per cent. might possibly be considered fairly satisfactory. But if 10 per cent. is not realized, then the business needs to be looked into most carefully. Throw the searchlight on it in every detail. Conduct an investigation of the most earnest character—and don't neglect to appoint yourself your own most heartless and ruthless critic.

The difficulty of the problem must not be minimized. In striving for an average gross profit of 38 per cent.—one might better make it 40 while he is at it—it will be found that many things will have to be marked up to a selling price once, twice and occasionally three times the cost price. As Charles R. Sherman, the shrewd pharmaceutical merchant of Omaha, once said: "One of the most important points in the conduct of a business is knowing where to put the profit on, and while 20 per cent. profit would be all the traffic would bear in some instances, 80 or possibly 120 per cent. on another article would seem no more burdensome to the purchaser and would really be just as legitimate."

It must be understood that 40 per cent. on the selling price is the equivalent of 67 per cent. on the cost price, and that in realizing an advance of 67 per cent. over the cost of an article, you are putting on "all the traffic will bear" in many cases. But since this is to be your *average* profit, and not your *maximum* profit, and since you have to sell a lot of things at 15 or 20 per cent., you must summon up your nerve and tack on the advances wherever the weight can be borne. This is positively the only way you can break even. Remember this finally: If it costs you 25 per cent. to do business, which is the general average the country over for retail druggists, this is equivalent to $33\frac{1}{3}$ per cent. on the cost figures. When, therefore, you buy an article for \$1.00, and sell it for $\$1.33\frac{1}{3}$, you are simply paying expenses and haven't made a cent! Don't forget this—it's a good thing to remember! A selling price of $\$1.33\frac{1}{3}$ on an article costing you \$1.00 hasn't netted you anything!

6. *They don't take advantage of their cash discounts.* Few druggists realize how much money they can save by availing themselves of cash discounts as they should, nor do they comprehend thoroughly that if they can cut down the cost of their goods in this manner they are certainly adding that much to what is yielded by them on sale. In a paper read last year I gave the facts about seven pharmacists who had always made it a practice to discount all their bills. The annual amounts saved by them were as follows: \$150.00, \$186.00, \$301.26, \$600.00, \$600.00, \$1,000.00, \$5,000.00. Since that time two or three other druggists have written me about this feature of their business. A physician out West, who owns a drug store but who hires a manager to conduct it, told me that with a business of about \$10,000 a year he was saving on an average \$150.00 annually by discounting all his bills. In his case this meant an enlargement of the total net profit realized from the business of something like 8 per cent! In another case, that of

a Michigan druggist, \$196.00 was saved last year in cash discounts. A saving of \$196.00 a year is equivalent to the net profits on sales amounting to \$1,500.00 or \$2,000.00—in other words, one would have to increase his business to this extent to make as much money as he can make without any trouble whatsoever by merely taking advantage of his cash discounts. And yet druggist after druggist goes to sleep on this opportunity, and pays anywhere from 1 to 4 or in some instances 6 per cent. more for his goods than he should.

These are a few of the reasons why some druggists don't make more money. I haven't tried to exhaust the whole catalogue of shortcomings—but I have already talked long enough. Neither do I mean to suggest for a minute that druggists are any worse than other retail merchants. They aren't. But I am convinced in my own mind that as a class they do not make that close economic study of their business which the times demand. They are scientific pharmacists—but they are not scientific business men. Modern business is just as much of a science as astronomy or biology or engineering. The old shipshod methods won't go—we are either up-to-date or out-of-date.

THE OLD ORDER CHANGETH.

It is futile, though human, to lament the passing of the old-time apothecary, with his intimate knowledge of the drug from the appearance of the first seed leaf in the field or in the garden up to the time when it left his store in the form of an infusion or decoction. The regret has no warrant in the ultimate result accomplished, so far as the medicinal products are concerned. The most that the most skillful pharmacists could hope to accomplish under the old regime is accomplished under the new more expeditiously, more economically and more uniformly by the skilled manufacturer.

But the field which has been narrowed for the pharmacist in one direction has been widened for him in another. If the modern successor to the old-time apothecary has a scientific bent he will find an outlet for it in bacteriology, and in carrying out microscopical and chemical investigations for the physician. Scientific training, moreover, need not be wholly lost in the purely commercial aspects of the business. Indeed, there has quite recently grown up a science of commerce, which consists in the application of scientific methods to the solution of commercial problems, and the trained exponents of this new science of commerce terming themselves efficiency engineers, industrial organizers, etc., have shown that even in the smaller details of industrial and commercial callings the application of scientific principles may be made the basis for material reduction in effort and increase in efficiency. While the individual pharmacist may have been the loser by newer developments in the making of medicines, the world as a whole is the better off, and it is the type which must profit, even at the cost of the single life.—*American Druggist*.

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE PREPARATION, QUALITY AND TESTING OF QUININE TANNATE.

W. A. PUCKNER AND L. E. WARREN.

Quinine is one of the very few specifics known to medicine. It is probably more used than any other single remedy. Because of the extremely bitter taste of its soluble salts its administration, especially to children, is a perplexing problem. Many attempts have been made to overcome this difficulty but few of them are without objections. The administration of the alkaloid in capsules or coated tablets is fairly satisfactory but most children and some adults cannot be induced to swallow these. Suspension of the alkaloid or some of its sparingly soluble compounds in flavored syrup has met with moderate success. Besides the alkaloid itself the most common combinations which are administered in this way are the sulphate, salicylate, tannate and certain esters.

Quinine tannate has been known in medicine for a very long time and the literature concerning it, although chiefly of pharmaceutical interest, is extensive. It is employed chiefly because it exhibits the quinine in an extremely insoluble form, one part of the salt requiring several thousand parts of cold water for solution. The salt is official in the Austrian, Danish, Dutch, German, Hungarian, Russian, Spanish and Swiss Pharmacopœias. Numerous methods have been proposed for the preparation of quinine tannate. In most of them quinine sulphate is employed as the starting point. This is dissolved in very dilute sulphuric acid and the solution precipitated with a solution of tannic acid containing a small amount of alkali, usually sodium bicarbonate or ammonia. In other methods the acetate or the hydrochloride of the alkaloid is employed and in some the precipitation is made in a hydro-alcoholic menstruum. The precipitate is then freed from soluble impurities more or less completely by washing.

Since the literature of quinine tannate is so voluminous and since it deals for the most part with unimportant modifications of processes for making the salt, no attempt is here made to review any except a few of the more important papers.

Between the years 1875 and 1885 Rozsnay,¹ a Hungarian pharmacist, perfected a process for preparing quinine tannate which produces a salt of great purity. For a time the method remained a secret but later the details became known and the process has now been incorporated in several of the pharmacopœias. By the process which Rozsnay introduced the salt is prepared in the usual way, washed with a small quantity of water and is then melted in hot water. By this process the small individual particles coalesce and the substance is thereby rendered less

¹Pharm. Zentralhalle, 16, 106 (1875).

New Remedies, 12, 274 (1883).

bitter. On pouring off the supernatant liquid the quinine tannate is left as a resin-like mass which soon solidifies and may then be powdered and dried.

A process for preparing quinine tannate which was quite popular a quarter of a century ago deserves mention.² Quinine was first prepared by precipitation from the solution of the sulphate of the alkaloid with solution of sodium carbonate. The precipitate was washed and dissolved in alcohol. The alcoholic solution was then poured slowly into an aqueous solution of tannic acid. The precipitate after washing and drying was light in color and practically tasteless. Because of its expensiveness, owing to the alcohol used, and because of the low alkaloidal content of the finished product (about 20 per cent.) the method is no longer used.

The therapeutic efficiency of quinine tannate has been questioned. Many years ago, Hager³ reported that from the results of experiments upon his own person and upon others he had concluded that this salt has only about one-tenth of the value of quinine sulphate. His conclusions, however, cannot be considered authoritative since he states that nine-tenths of the alkaloid may be recovered from the urine and feces. He evidently assumes that the alkaloid eliminated by the urine is inert, a conclusion which, in the light of present knowledge, is not justified.

Some years after Hager's report was published Field⁴ experimented with the solubility of quinine tannate in gastric juice. He prepared artificial gastric juice and also collected the natural secretion from a healthy dog. He attempted to dissolve the quinine tannate in these solutions but found that the salt was practically insoluble. From the results of his experiments, which also included the administration of the drug to the human subject, the author concluded that quinine tannate is practically inert as a medicinal substance. It would appear that this conclusion, so far as it is based upon the solubility of the salt in gastric juice, is untenable because the salt is prepared by precipitation from a slightly acid solution and it could not, therefore, be expected to dissolve appreciably in gastric juice. Field pointed out that even if the salt were absorbed in the stomach of the patient, the ingestion of such large proportions of tannic acid might be very undesirable.

On the other hand Zeig⁵ contends that the salt is active. He states that if a grain of the salt be dissolved in an ounce of very dilute hydrochloric acid at a temperature of 140° F. (60° C.) the solution will possess a taste as bitter as that of a control using an equivalent amount of quinine sulphate.

Christian⁶ working in Koch's clinic has studied the efficiency of some of the difficultly soluble quinine salts and esters. He administered known quantities of the alkaloidal combination, collected the urine of the patients and extracted the alkaloid therefrom, the percentage of alkaloid excreted being considered as the

²Pharm. Zentralhalle, 23, 550 (1882).

Am. Druggist, 16, 68 (1887).

³Pharm. Zentralhalle, 13, 247 (1872).

⁴Phys. Surg., 5, 353 (1883).

Proc. Am. Pharm. Assn., 21, 379 (1873).

Pharm. Rec., 4, 5 (1884).

Proc. Am. Pharm. Assn., 32, 308 (1884).

⁵West. Druggist, 15, 361 (1893); from Proc. Cal. Pharm. Assn. (1892).

Proc. Am. Pharm. Assn., 42, 651 (1894).

⁶Deutsch. Med. Woch., 29, 216 (1903).

efficiency criterion. While a number of experiments were carried out with such compounds as euquinine and saloquinine only two tests with quinine tannate were recorded. From one of these 13.18 per cent. of the alkaloid given was recovered and from the other 23.79 per cent.

From the conflicting results of these inadequate and for the most part unscientific experiments, it can be seen that the question of the therapeutic efficiency of the salt is still an open one. It is to be hoped that the value of quinine tannate will be determined by scientific experimentation.

But few reports of examinations of commercial quinine tannate have appeared. In 1879 Jobst⁷ examined several specimens of the preparation, the method of manufacture of which was unknown to him, and at the same time several factory specimens of known origin were studied. The examination revealed great variations in composition, not only in respect to the content of water and total alkaloid, but also in the *kind* of alkaloid, as several of the commercial specimens contained mixtures of the cinchona alkaloids. His findings are tabulated below:

Method of Manufacture	Water (Loss at 120°) Per Cent.	Quinine, Per Cent.	Quinidine, Per Cent.	Cinchonidine Per Cent.	Cinchonine Per Cent.
Known	7.2	31.37			
Known	9.7	22.72			
Known	10.7	10.00			
Known	11.4	7.40			
Unknown	9.1	4.46	11.97	7.33	
Unknown	9.8	4.93	2.43	13.10	3.35
Unknown	10.2	6.23	Trace	20.80	Trace

He assigns the formula, $C_{20}H_{24}O_2N_2 \cdot 2C_{14}H_{10}O_9 + 4H_2O$, as the most probable one for the salt having the highest quinine content, viz., 31.37 per cent. The total alkaloidal content was determined by mixing with freshly slacked lime, drying and extracting the pulverized mass with chloroform. As the author's methods for the quantitative separation of the several alkaloids are not given, no estimate of the accuracy of the recorded results can be made. Water was determined by drying at 120°. From the results of his experiments he concluded that tannic acid is capable of forming very variable compounds with quinine according to the proportion and manner in which it is employed in the manufacture of the combination. To obtain products of even an approximately constant composition definite quantities of tannic acid and of quinine must always be employed.

In 1889 Neumann⁸ examined four commercial specimens of quinine tannate while testing a method which he had worked out for the assay of the product. The quinine content varied between 13.9 per cent. and 28.8 per cent., three of the specimens assaying more than 25 per cent. of the alkaloid. These results, however, could not be considered as authoritative as controls indicated that the method gave values about 3 per cent. too high.

In 1892 Zeig⁹ stated that he had found the alkaloidal content of commercial

⁷Arch. Pharm., 212, 331 (1878).

Proc. Am. Pharm. Assn., 26, 578 (1878).

⁸Zeit. anal. Chemie, 28, 663 (1889).

Proc. Am. Pharm. Assn., 38, 673 (1890).

⁹West. Druggist, 15, 361 (1893); from Proc. Cal. Pharm Assn. (1892).

Proc. Am. Pharm. Assn., 42, 651 (1894).

specimens of quinine tannate to vary between 10 and 25 per cent. but he gave no information concerning the number of specimens examined nor of the names of the brands studied.

Quinine tannate having been considered by the Council on Pharmacy and Chemistry of the American Medical Association, the association laboratory took up the examination of the several brands of the product on the American market. At the same time specimens of the salt were prepared by various methods and these were included in the examination. Tentative academic standards for the substance were prepared and submitted for criticism to several manufacturers of pharmaceutical chemicals whom it was thought might be interested.

LABORATORY SPECIMENS.

The method of manufacture first employed was that of the Swiss Pharmacopoeia. Briefly the method is as follows:

Nine parts of quinine sulphate are dissolved in a mixture consisting of 16 parts diluted sulphuric acid and 300 parts of water. Twenty-one parts of tannic acid and 3.5 parts of sodium bicarbonate are dissolved in 300 parts of water without the application of heat. This solution is poured with constant stirring into the solution of quinine sulphate. The resultant precipitate is washed with water until the washings, after acidification with nitric acid, cease to give a turbidity with barium nitrate solution.

In preparing the salt by this method it was found impracticable to follow the directions concerning the washing to completion, as the precipitate was of such bulk that the sulphate could not be completely removed. Although the standard of the Swiss Pharmacopoeia requires that the salt shall contain from 30 to 35 per cent. quinine, the laboratory specimen prepared as above contained but about 25.8 per cent. alkaloid. Quinine was determined by suspending the salt in weak ammonia water, shaking the mixture with successive portions of chloroform until extraction was complete, evaporating the solvent, drying the residue at 100°, and weighing the alkaloid.* Water was determined by drying at 100° C. This specimen lost 7.6 per cent. of its weight on drying. In the appended table of analytical results it is designated as "No. 1."

A leading manufacturer of quinine salts, having criticised the Swiss method of manufacture (the method included in the tentative academic standards which were submitted to the manufacturers) in respect to the proportions of the several ingredients used, a specimen was prepared in the laboratory by the Swiss method but using the quantities suggested by this manufacturer, which were as follows:

Quinine sulphate	8.4 parts
Diluted sulphuric acid.....	15.0 "
Tannic acid	15.0 "
Sodium bicarbonate	3.0 "

The manufacturer stated that these proportions would yield a product corresponding very nearly to the formula, $C_{20}H_{21}O_2N_2(HC_6H_4O_2) + 4H_2O$, and containing 31.16 per cent. anhydrous quinine, 61.91 per cent. tannic acid and 6.93 per cent. water. The laboratory specimen prepared according to the manufacturer's suggestion contained 31.3 per cent. alkaloid and lost 9.0 per cent. of its weight on drying. This specimen is designated as "No. 2" in the table of analytical results.

Quinine tannate was prepared by the method of the Hungarian Pharmacopoeia.

*This method is described in greater detail in the tentative description for Quinine Tannate given elsewhere in this paper.

aliquot parts of the prescribed quantities being used. The following is the method as used:

Ten parts of quinine sulphate are dissolved in 150 parts of distilled water by the aid of the smallest necessary quantity of diluted sulphuric acid. Twenty parts of tannic acid are dissolved in 140 parts of water and the filtered solution poured with constant stirring into the solution of quinine sulphate. A mixture of 5 parts of tannic acid, 80 parts of water and 5 parts of ammonia water is filtered and poured slowly and with constant stirring into the quinine-tannin mixture prepared as above described. The resultant precipitate is collected on a filter and washed with 80 parts of water. The mass is then gently expressed and warmed with 40 parts water until it melts to a resin-like mass. It is then dried and pulverized.

Although the Hungarian Pharmacopœia requires that the salt shall contain from 30 to 32 per cent. anhydrous quinine the laboratory specimen prepared as above described contained but about 25 per cent. alkaloid. In drying the specimen lost about 10 per cent. of its weight. (In the table of analytical results this specimen is designated as "No. 3.")

The salt was then prepared by the method of the Hungarian Pharmacopœia except that the quantities of the several ingredients used were modified to conform to the proportions employed in the preparation of "No. 2." Ammonia water was used as the precipitant. The following quantities were used:

Solution 1—Quinine sulphate	8.4 gm.
Diluted sulphuric acid.....	15.5 c.c.
Water	150.0 c.c.
Solution 2—Tannic acid	10 gm.
Water	70 c.c.
Solution 3—Tannic acid	3 gm.
Ammonia water	5 c.c.
Water	50 c.c.

This laboratory specimen prepared as above contained 28.7 per cent. alkaloid and lost 10.0 per cent. of its weight on drying. The specimen is designated as "No. 4" in the table of analytical results.

Another specimen was prepared exactly like "No. 4" except that sodium bicarbonate was used as the precipitant instead of ammonia water, 3 gm. being used. This specimen contained 33.3 per cent. alkaloid and lost 7.2 per cent. of its weight on drying. It is designated as "No. 5" in the table of analytical results.

Quinine tannate was prepared by the method official in the German Pharmacopœia. Essentially this is the Rozsnyay method, official in the Hungarian Pharmacopœia, but it has been modified in one important particular. It is directed that after the salt has been dried in a warm place, it is to be dried at 100° C. The preparation of a specimen by this method was begun and completed through the stage of drying at 30° to 40° C. The air-dried specimen was then divided into two equal portions and one of them was dried at 100° C. as directed. The two sub-divisions were then compared. The air-dried specimen was a drab colored, moderately bulky powder which did not adhere to the surfaces of glass or paper. It contained 25.8 per cent. quinine and the loss on drying at 100° C. amounted to 9.8 per cent. The portion which had been dried at 100° C. was somewhat darker in color than the other, was slightly less bulky, and adhered to glass and paper in a troublesome way. It contained 27.8 per cent. of quinine. These specimens are respectively designated in the table of analytical results as "No. 6" and "No. 6-a." The German Pharmacopœia requires that the salt shall contain at least 30 per cent. of quinine.

Another specimen was prepared by the following method:

Ten gm. of quinine sulphate are dissolved in a mixture of 15 c.c. of diluted sulphuric acid and 300 c.c. of water. Twelve gm. tannic acid are dissolved in 100 c.c. water and the filtered solution poured slowly and with constant stirring into the solution of quinine sulphate. Six gm. tannic acid are then dissolved in 50 c.c. water and 2 gm. sodium bicarbonate dissolved in the solution. This solution is filtered and the filtrate poured slowly and with constant stirring into the quinine-tannin mixture prepared as above described. The precipitated quinine tannate is allowed to stand for 24 hours. It is then poured onto a muslin filter, washed with 100 c.c. water and expressed with moderate pressure. The expressed mass is then transferred to a porcelain dish, 100 c.c. water added and the mixture heated on the water bath until the quinine tannate melts to a resin-like mass. The supernatant liquid is poured off, the mass dried in the air, and pulverized.

This specimen contained 29.3 per cent. alkaloid and lost 7.9 per cent. of its weight on drying. It is designated as "No. 7" in the tabulated analytical results.

As it seemed probable that the amount of sodium bicarbonate was too small to obtain a salt containing the maximum amount of alkaloid, the experiment was repeated with some variations. Three gm. sodium bicarbonate were employed instead of two and the amounts of solvent in some cases were changed. The details of the variations may be seen by consulting Table I. This process yielded 22.2 gm. of the salt (from 10 gm. quinine sulphate), and the specimen ("No. 8" in table II) contained 29.1 per cent. alkaloid and the loss on drying amounted to 7.3 per cent.

In the hope of obtaining a salt with a higher alkaloidal content another specimen was prepared by the same method as was used in "No. 8" except that 4 gm. sodium bicarbonate were used as the precipitant. The quantities of the several ingredients used may be seen by consulting Table I. This specimen was very dark colored and otherwise objectionable in appearance. The yield was less than that obtained by some of the other methods and the product was less bulky. It contained 34.2 per cent. of quinine and lost 8.1 per cent. of its weight on drying. This specimen is designated as "No. 9" in Table II.

Another specimen was prepared by a method which is very similar to that used in the preparation of "No. 8," the quantities of the several ingredients used being given in Table I. This specimen contained 33.7 per cent. alkaloid and lost 7.7 per cent. of its weight on drying. It is designated as "No. 10" in Table II.

A general idea of the variations in the processes used in the preparation of the several specimens may be gained by a study of Table I. In this table the composition is given of the several "solutions" used in the manufacture of each specimen. It is to be understood, of course, that precipitation is brought about by mixing the several solutions.

From the results of the experimental work it is concluded that it is easily possible to obtain quinine tannate containing over 30 per cent. of anhydrous quinine, but that this desideratum is not attainable if the substance be prepared by any of the methods now official in the pharmacopoeias. Sodium bicarbonate is more satisfactory as a precipitant than ammonia water, but it is essential that an excess of the alkali be avoided. While the observations and experiments are too few to warrant a positive conclusion, it appears that if ammonia water be used as the precipitant, the yield of the finished product will be larger than is the case when sodium bicarbonate is employed. The quinine content, however, is

proportionately smaller. The observation of Jobst that in order to obtain products of even an approximately constant composition it is necessary to employ definite proportions of tannic acid and of quinine has been confirmed by our experiments.

TABLE I

Solu- tion		1	2	3	4	5
1	Quinine sulphate.....	9	8.4	10 gm.	8.4 gm.	8.4 gm.
	Diluted sulphuric acid.	16	15.0	q. s.	15.5 cc.	15 cc.
	Water	300	300	150	150 cc.	150 cc.
2	Tannic acid			20 gm.	10 gm.	10 gm.
	Water			140 cc.	70 cc.	70 cc.
3	Tannic acid	21	15			3 gm.
	Sodium bicarbonate....	3.5	3			3 gm.
	Water	300	300			50 cc.
4	Tannic acid			5 gm.	3 gm.	
	Ammonia water			5 cc.	5 cc.	
	Water			80 cc.	50 cc.	
5	Sodium bicarbonate....					
	Water					
6	Tannic acid					
	Water					
Solu- tion		6—6a	7	8	9	10
1	Quinine sulphate.....	4 gm.	10 gm.	10 gm.	10 gm.	10 gm.
	Diluted sulphuric acid.	q. s.	15 cc.	15 cc.	15 cc.	15 cc.
	Water	120 cc.	300 cc.	150 cc.	150 cc.	150 cc.
2	Tannic acid	8 gm.	12 gm.	12 gm.	12 gm.	12 gm.
	Water	50 cc.	100 cc.	100 cc.	75 cc.	75 cc.
3	Tannic acid		6 gm.			
	Sodium bicarbonate....		2 gm.			
	Water		50 cc.			
4	Tannic acid	2 gm.				
	Ammonia water	2 cc.				
	Water	32 cc.				
5	Sodium bicarbonate....			3 gm.	4 gm.	3 gm.
	Water			40 cc.	50 cc.	50 cc.
6	Tannic acid			3 gm.	3 gm.	3 gm.
	Water			25 cc.	50 cc.	50 cc.

COMMERCIAL SPECIMENS.

Four specimens of quinine tannate bearing the labels of as many manufacturers were purchased and examined with particular reference to the alkaloidal content and to the loss on drying at 100° C. These specimens are designated as Nos. "11," "12," "13" and "14." Specimen "No. 11" contained 29.3 per cent. anhydrous quinine and the loss on drying the specimen amounted to 7.9 per cent. of the original weight. Specimen "No. 12" contained 29.5 per cent. of quinine and the loss on drying amounted to 6.5 per cent. Specimen "No. 13" contained about 33.4 per cent. of alkaloid and the loss on drying amounted to 8.0 per cent. Specimen "No. 14" contained about 34.0 per cent. total alkaloid and the loss on drying amounted to 9.0 per cent. This specimen contained a considerable quantity of uncombined alkaloid to which reference will again be made.

The amount soluble in anhydrous ether under specified conditions was determined, not only in the specimens purchased, but also in those prepared in the laboratory. Tests for chloride and sulphate were also carried out and an attempt was made to obtain some idea of the relative bitterness of the several specimens examined.

Ether-Soluble. Preliminary tests indicated that one of the specimens contained considerable amounts of uncombined alkaloid. Accordingly the amount soluble in dry ether was determined as follows:

Two gm. quinine tannate were placed in a beaker, 25 c.c. anhydrous ether poured upon it and the mixture stirred with a glass rod. After allowing the suspended salt to settle the supernatant liquid was poured through a dry filter into a tared flask. The insoluble residue was similarly treated twice more with 25 c.c. portions of dry ether and the filter finally washed with 10 c.c. of the solvent. The united filtrates were distilled, the residue dried at 100° C. and weighed. As quinine tannate is slightly soluble in anhydrous ether a weighable residue may always be expected.

When tested by the above described method, the several specimens, with a single exception, gave residues varying not far from 0.1 per cent. to 0.3 per cent. One specimen ("No. 19") contained about 9 per cent. ether-soluble matter, which latter appeared for the most part to consist of free-alkaloid.

Chloride and sulphate. One gm. of quinine tannate was thoroughly shaken with 100 c.c. of water and the mixture allowed to settle. The supernatant liquid was poured through a filter, the filtrate acidified with diluted nitric acid and the usual tests for chloride and sulphate applied. With one exception each specimen contained appreciable amounts of sulphate and traces of chloride. In this one exception sulphate was absent, but considerable amounts of chloride were present, thus indicating the probable source from which the salt had been prepared.

Bitterness. One gm. of the salt was shaken with 100 c.c. of water and filtered. The filtrates from several specimens were then compared by tasting. While none of the filtrates were free from bitterness in general, the relative bitterness was found to coincide with the relative turbidity found in the tests for chloride or sulphate. Specimen "No. 14," which contained a large amount of free alkaloid, was much more bitter than any of the others, although it is described upon the label as "Neutral-Tasteless."

The results found from the several specimens examined are tabulated below:

Number or brand	Anhydrous quinine	Water (Loss at 100°)	Ether-soluble	Sulphate
1	25.75	7.64	0.17	Very marked turbidity
2	31.33	9.01	0.08	Very marked turbidity
3	25.02	9.96	0.10	Faint turbidity
4	28.70	9.96	0.05	Marked turbidity
5	33.31	7.20	0.11	Faint turbidity
6	25.85	9.78	0.08	Faint turbidity
6-a	27.82		0.09	Faint turbidity
7	29.33	7.94	0.09	Faint turbidity
8	29.12	7.35	0.12	Faint turbidity
9	34.25	8.12	0.09	Faint turbidity
10	33.72	7.74	0.08	Faint turbidity
11	29.30	7.88	0.10	Distinct turbidity
12	29.51	6.50	0.19	Absent
13	33.36	8.05	0.36	Distinct turbidity
14	33.97	9.06	9.02	Very faint opalescence

Number or brand	Chloride	Taste of filtrate	Yield (in gm.) calculated from 10 gm. quinine sulphate	Remarks
1	Noticeable opalescence	Noticeably bitter		
2	Very faint opalescence	Noticeably bitter		
3	Very faint opalescence	Slightly bitter	31	
4	Very faint opalescence	Slightly bitter		
5	Very faint opalescence	Slightly bitter		
6	Very faint opalescence	Slightly bitter	28.8	
6-a	Very faint opalescence	Slightly bitter	26.0	Adheres to glass and paper
7	Very faint opalescence	Slightly bitter		
8	Very faint opalescence	Slightly bitter	23.2	Dark color
9	Very faint opalescence	Slightly bitter	20.0	
10	Very faint opalescence	Slightly bitter	20.6	
11	Noticeable opalescence	Noticeably bitter		
12	Very marked opalescence	Noticeably bitter		Evidently prepared from quinine hydrochloride
13	Noticeable opalescence	Noticeably bitter		
14	Very faint opalescence	Very bitter		

From the results of the examination it is seen that commercial quinine tannate varies somewhat in composition. Doubtless this is due to slight differences in the manufacturing methods of the various makers. However, with the exception of specimen "No. 14," which bears evidence of careless manufacture, the several makes of quinine tannate on the American market may, on the whole, be regarded as of sufficiently uniform composition for practical purposes.

Based upon the provisional academic standards as first prepared but modified as found necessary by the results of the experimental work, and by the suggestions offered by those to whom the provisional description was submitted for criticism, tentative standards for quinine tannate have been prepared. Our thanks are due to those manufacturers who have made suggestions and criticisms in the preparation of these provisional standards for quinine tannate. The description and standards suggested are as follows:

QUININE TANNATE.—*Quinine Tannas.* Quinine tannate is the tannate of the alkaloid, quinine, containing from 30 to 35 per cent. of quinine.

Quinine tannate may be prepared as follows:

Ten gm. of quinine sulphate are dissolved in a mixture of 15 c.c. of diluted sulphuric acid and 150 c.c. of water. Twelve gm. tannic acid are dissolved in 75 c.c. water and the filtered solution poured slowly and with constant stirring into the solution of quinine sulphate. Three

gm. tannic acid are then dissolved in 50 c.c. water and 3 gm. sodium bicarbonate dissolved in 50 c.c. water. These solutions are filtered, the filtrates mixed, and the mixture poured slowly and with constant stirring into the quinine-tannin mixture prepared as above described. The precipitated quinine tannate is allowed to stand for 24 hours. It is then poured onto a muslin filter, washed with 100 c.c. water and expressed with moderate pressure. The expressed mass is then transferred to a porcelain dish, 50 c.c. water added and the mixture heated on the water bath until the quinine tannate melts to a resin-like mass. The supernatant liquid is poured off, the mass cooled, dried in the air and pulverized.

Quinine tannate is an amorphous, pale lemon-yellow to yellowish-white, odorless powder without taste, or at most slightly bitter, and with scarcely any astringency. It is slightly soluble in water, ether and chloroform, but somewhat more soluble in alcohol. The aqueous and alcoholic solutions are colored bluish-black by ferric chloride test solution. Quinine tannate melts on heating in a glass tube to a purplish, tar-like material.

If 1.0 gm. of quinine tannate be shaken with a mixture of 50 c.c. of water and 1 c.c. nitric acid and the mixture filtered, a portion of the filtrate should not become more than slightly opalescent after the addition of 1 c.c. of silver nitrate test solution; nor should there be any darkening after the addition of 1 c.c. of hydrogen sulphide test solution; nor should a portion be rendered turbid immediately by barium chloride test solution.

If from 0.5 gm. to 1.0 gm. of quinine tannate be mixed with 25 c.c. water and an excess of ammonia water, the mixture extracted with three successive portions of 20 c.c. each of chloroform, the total solvent washed with water and evaporated, the weight of residue obtained after drying at 100° C. should correspond to from 30 to 35 per cent. of anhydrous quinine. If this residue be dissolved in 30 c.c. of water by the aid of a few drops of diluted hydrochloric acid and 1 c.c. of the solution be mixed with 20 c.c. of water and two or three drops of bromine test solution, the mixture should assume a green coloration on the addition of ammonia water.

If 0.2 gm. quinine tannate be ignited no weighable residue should be obtained.

If from 0.5 gm. to 1.0 gm. quinine tannate be dried at 100° C. to constant weight the loss should not correspond to more than 10 per cent. of the weight of substance taken.

If 2.0 gm. of quinine tannate be shaken with three successive portions of 25 c.c. each of anhydrous ether, the solvent poured through a filter, the filter washed with 10 c.c. of the solvent, the several filtrates united, evaporated and the residue dried to constant weight at 100° C., the weight of the residue should not exceed 0.005 gm. (limit of *uncombined alkaloid*).

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Notes that the dose of the tannate must be larger than that of the sulphate.
- 1872 Hager.
Pharm. Zentralhalle, 13, 247.
Proc. Am. Pharm. Assn., 21, 379 (1873).
Concludes that quinine tannate has only 1-10 of the therapeutic value of the sulphate.
Reports finding about 9-10 of the alkaloid in the urine and feces.
- 1872 Klever.
Chem. Zentr., 43, 434; from Pharm. Ztschr. Russ. (1872).
States that 100 gm. glycerol dissolve 0.25 gm. quinine tannate.
- 1874 Regnault.
Pharm. Zentralhalle, 16, 41; from Repert. Pharm. (1874).
Proc. Am. Pharm. Assn., 23, 214 (1875).
A method of manufacture is described in which quinine acetate is used as the starting point.
- 1875 Rozsnay.
Pharm. Zentralhalle, 16, 106.
Proc. Am. Pharm. Assn., 23, 414 (1875).
Quinine sulphate is dissolved in boiling water and precipitation brought about by the addition of tannate of ammonia.
- 1877 Haaxman.
Jour. pharm. chim., [4], 25, 420.
Describes a process for the manufacture of quinine tannate.
- 1877 Pharmaceutical Society of Paris.
Pharm. Jour. Tr., [3], 8, 86.
Proc. Am. Pharm. Assn., 26, 577 (1878).
Method for preparing tasteless quinine tannate.
- 1877 Stocker.
Jour. pharm. chim., [4], 26, 418.
Describes a method of preparation. Product contains about 22 per cent. alkaloid.
- 1878 Jobst.
Arch. Pharm., 212, 331.
Proc. Am. Pharm. Assn., 26, 578 (1878).
Report of an examination of several specimens of commercial quinine tannate.
- 1878 Dwars.
Jahresber. Forsch. Pharm., etc., 38, 472; from Ned. Tijdschr (1878).
- 1878 Berwick.
Am. Pharm. Pharm., 50, 259; from Pharm. Ztg. (1878).
Proc. Am. Pharm. Assn., 26, 578 (1878).
Process for manufacturing quinine tannate.
- 1882 Dukla.
Pharm. Jour. Tr., [3], 13, 444; from Pharm. Ztg. (1882).
Process for manufacture of the salt by the alcohol solvent method.
- 1882 Anonymous.
New Remedies, 11, 173.
Proc. Am. Pharm. Assn., 30, 414 (1882).
Review of a process of manufacture which employs acetate of ammonia. Product contains 19 to 21 per cent. of quinine.
- 1882 Fiebert.
Pharm. Zentralhalle, 23, 550; from Zeit. cest. Ap. Ver. (1882).
Proc. Am. Pharm. Assn., 31, 273 (1883).
Process of manufacture by the alcohol solvent method.
- 1883 Rosznay.
Proc. Am. Pharm. Assn., 32, 308; from Gy. Rund. (1883).
New Rem., 12, 274 (1883).
A method of assay. Substance is mixed with calcium and sodium hydroxides, dried, and the mass extracted with chloroform.
- 1883 Rother.
Am. Jour. Pharm., 55, 172.
Maintains that the compounds of quinine and tannic acid are not true salts but are analogous to the alcoholates. Suggests that they be called "tannolates." Theoretical composition discussed.
- 1883 Weiss.
Proc. Am. Pharm. Assn., 32, 84 (1884); from Pharm. Ztg. (1883).
Describes a method for preparing a finely divided quinine tannate in a syrup.

- 1883 Field.
Phys. Surg, 5, 353.
Pharm. Rec., 4, 5 (1884).
Proc. Am. Pharm. Assn., 32, 308 (1884).
Experiments with the solubility of quinine tannate in gastric juice.
- 1885 Schwarz.
Pharm. Zentralhalle, 26, 471; from Pharm. Ztg. (1885).
Proc. Am. Pharm. Assn., 34, 605 (1886).
Apparently the first to employ sodium bicarbonate as a precipitant in the manufacture of quinine tannate. Produced a specimen containing 33.3 per cent. of quinine.
- 1885 Peltz.
Pharm. Ztschr. Russ., 24, 80.
Proc. Am. Pharm. Assn., 33, 303 (1885).
Recommends the use of quinine hydrochloride in place of the sulphate in the manufacture of quinine tannate.
- 1889 Neumann.
Zeit. anal. Chemie, 28, 663.
Proc. Am. Pharm. Assn., 38, 673 (1890).
Describes a process for the alkaloidal assay of quinine tannate. Controls indicate that the method gives values about 3 per cent. too high. Examined several commercial specimens, the alkaloidal content of which (as found) ranged from 13.9 per cent. to 28.8 per cent.
- 1891 De Vrij.
Ned. Tijdschr., 3, 113.
Proc. Am. Pharm. Assn., 40, 744 (1892).
A method of preparation is described.
1892. Zeig.
West. Druggist, 15, 361 (1893); from Proc. Cal. Pharm. Assn. (1892).
Proc. Am. Pharm. Assn., 42, 651 (1894).
States that commercial quinine tannate contains from 10 per cent. to 25 per cent. alkaloid. Believes that the salt is sufficiently soluble in gastric juice to be therapeutically active.
- 1893 Drake.
Proc. Am. Pharm. Assn., 42, 675 (1894); from Proc. Mass. Pharm. Assn. (1893).
Describes a process of manufacture in which no alkali is employed.
- 1894 De Vrij.
Pharm. Zentralhalle, 35, 155.
Proc. Am. Pharm. Assn., 42, 1108 (1894).
Describes a process for preparing the salt.
- 1898 Rosenheim and Schidrowitz.
Jour. Chem. Soc., 73, 884.
Find that the specific rotatory power of quinine tannate in methyl alcohol solution at 15° is 40.1°.
- 1898 Schidrowitz.
See Rosenheim.
- 1900 Zeelt.
Pharm. Ztg., 45, 96; from Pharm. Wkblad. (1900).
Proc. Am. Pharm. Assn., 48, 813 (1900).
Describes a process for manufacturing quinine tannate.
- 1903 Christian.
Deutsch. Med. Woch., 29, 216.
Administered known quantities of quinine tannate to human beings and recovered the alkaloid excreted in the urine. In each of two experiments he recovered less than 25 per cent. of the total alkaloid given.
- 1906 Fränkel.
Die Arzneimittel-Synthese ed. 2, 140 (1906).
Calls attention to the possible undesirability of the large proportion of tannin in quinine tannate.
- 1906 Nierenstein.
Chem. Zentralhalle, 77, 11, 1417 (1906); from Collegium (1906).
Amorphous quinine tannate melts at 62-64° C.; it may be crystallized from ether by the addition of acetic anhydride; crystallized substance melts at 79-81°.
- 1909 Calliess.
Ap. Ztg., 24, 159.
Pharm. Zentralhalle, 50, 263, 807 (1909).
Describes a method of assay.

- 1910 Cohn.
Pharm. Zentralhalle, 51, 265.
Year Book Pharm., 12 (1910).
Method for manufacture.
- 1911 May.
Chem. Syn. Drugs, 84 (1911).
Mentions that quinine tannate is but slowly split up in the intestine and for this reason it is lacking in therapeutic promptitude and certainty.
- Laboratory of the American Medical Association.

PROPOSED STANDARDS FOR CAMPHOR AND SPIRIT OF CAMPHOR.

L. D. HAVENHILL AND F. E. ROWLAND.

Spirit of Camphor and Camphor were made official in 1820. The Spirit has for many years been a very popular household remedy and in view of the fact that it has been reported as extremely variable in strength and quality by analysts in various parts of the country, it would seem desirable to introduce into the forthcoming Pharmacopœia some special tests for determining its strength and purity. In the years that this preparation has been official, it, like many other official preparations, has been subjected several times to fancied improvements.

In general, changes of formula lead to confusion, and as these changes have many times been shown to have been ill advised, criticism has thus arisen to the effect that the committees of revision often do not give sufficient attention to them. The decennial revisions have sometimes seemed to be somewhat lacking in that definiteness of purpose which is conducive to confidence and healthy growth.

In tracing the evolution of Spirit of Camphor, several interesting changes are noted. It was official in 1820 as Tincture of Camphor, the title by which it is still known in the French Pharmacopœia. It was made by dissolving one Troy ounce of Camphor in one pint of Alcohol. This is the equivalent of about 6.14 gm. of Camphor dissolved in enough Alcohol (89.7%) to make 100 cc. There were two Pharmacopœias in 1830. That which resulted from the New York convention changed the title to Spirit of Camphor, the title by which it is known in the latest editions of the German, Swiss, British and Japanese Pharmacopœias. The Pharmacopœia which resulted from the Washington convention retained the title of Tincture. In both pharmacopœias the formula was changed to a strength of four Troy ounces of Camphor dissolved in two pints of Alcohol. This is the equivalent of about 11.54 gm. of Camphor dissolved in sufficient Alcohol (89.7%) to make 100 cc. In 1840 the Washington convention disregarded the timely change in the New York convention ten years before and continued the preparation without change until 1860. Then the title was changed to Spirit. No additional change was made in 1870 but in 1880 the formula was materially altered and the Spirit as then prepared consisted of Camphor, 10 parts, Alcohol (94%) 70 parts, and water 20 parts. This is the equivalent of about 8.72 gm. of camphor dissolved in sufficient Alcohol (80.56%) to make 100 cc.

In the light of subsequent revisions this weakening of the alcoholic strength was ill advised. In 1890 the formula was again changed and the preparation was made by dissolving 10 gm. of Camphor in sufficient Alcohol (94%) to make 100 cc. The manufacture by weight directed ten years before was discontinued. It is to be noted in this connection that of the Pharmacopœias before mentioned, the British is the only one in which this preparation is not directed to be made by weight at the present time. It has been claimed in defense of this change that the manufacture of Galenicals by weight was not popular with the Americans. This may have been so but we are inclined to the belief that this method of compounding was and is still popular with many manufacturing pharmacists, and, that it would have been desirable to have retained the formulas for compounding by weight at least as alternative ones. The diluting of the alcohol was not only discontinued but the alcoholic strength was increased beyond that of any previous formula. In the Pharmacopœia of 1900 the formula again underwent a slight change by reason of the increase in strength of Alcohol from 94 to 94.9%.

A comparison of the formulas for Spirit of Camphor as found in the foreign Pharmacopœias shows that the English method of manipulation is similar to ours, but that alcohol of 90% is used. In the German, Swiss and Japanese Pharmacopœias the compounding is by weight and the finished preparation is practically identical and approximates the formula of the 1800 Pharmacopœia. The formula of the French Pharmacopœia is composed by weight, but the alcohol used is of the same strength (90%) as that of the British Pharmacopœia.

We believe that the present U. S. P. formula is suited to the needs of the American physicians and that further tampering with it is unnecessary. All of the recent foreign Pharmacopœias give either the specific gravity or density of this preparation and this data should be included in ours. This data will enable those who so desire to manufacture Spirit of Camphor by weight. The specific gravity, however, does not seem sensitive enough to serve as a suitable standard as shown by the following: The apparent specific gravity at 20° C. of this Spirit when made with 90% alcohol would be about 0.8449, when made with 94.9% alcohol about 0.8296 and when made with absolute alcohol about 0.8133. These figures indicate that a variation in specific gravity of about 0.003 would indicate a variation in alcoholic strength of about 1%. With a constant Camphor content the specific gravity would serve as a satisfactory measure of the alcoholic strength. The apparent specific gravity of a spirit containing 8 grammes of Camphor in each 100 cc., when made with 94.9% alcohol is about 0.8263 and for one containing 12 gm. of camphor in each 100 cc., about 0.8324. It is thus seen that here a variation of 0.003 in specific gravity would indicate a variation of about 2 gm. or 20% in the Camphor content, a variation which is in our opinion too great. For this reason we would recommend that the approximate specific gravity be given instead of a limiting range. In view of the above facts it seems to us desirable to have some recognized method for the direct determination of water in this spirit as well as a specific method for determining the allowable variation in camphor

¹Seymour: A simple method of estimating Camphor and Alcohol in Spirit of Camphor. Proc. A. Ph. A. (1907), Vol. 55, page 443.

content. We have found that the use of anhydrous Potassium Carbonate as proposed by Seymour¹ answers very well for the detection of water.

The test for limiting the camphor content as proposed by the German and Swiss Pharmacopœias is based upon the volume of water necessary to cause a precipitation of camphor in 10 gm. of the Spirit under stated conditions. The German standard seems to us to be too lax as it seemingly allows a range of approximately 2 gm. or 20% in camphor. This is however closely in accord with their allowable range in specific gravity, 0.885 to 0.889. On the other hand the standard of the Swiss Pharmacopœia accords more closely with our ideas as it allows a variation of about $\frac{1}{2}$ gm. or 5% in camphor content. This, however, is not in accord with the range allowed by the specific gravity which is the same as that of the German Pharmacopœia. The French Pharmacopœia gives the approximate density and the optical rotation but does not define the allowable variation. The precipitation method is very satisfactory when the percentage of water and the temperature are kept constant. We have ascertained at 20° C. the number of cc. of water which are necessary to cause a precipitate on 5cc. of Spirit of various strengths in U. S. P. Alcohol to be as follows:

5 cc. spirit of strength	4 gm.:	100 cc. requires	7.90 cc. of water.
5 cc. spirit of strength	5 gm.:	100 cc. requires	6.95 cc. of water.
5 cc. spirit of strength	6 gm.:	100 cc. requires	6.4 cc. of water.
5 cc. spirit of strength	8 gm.:	100 cc. requires	5.45 cc. of water.
5 cc. spirit of strength	10 gm.:	100 cc. requires	4.7 cc. of water.
5 cc. spirit of strength	12 gm.:	100 cc. requires	4.15 cc. of water.
5 cc. spirit of strength	14 gm.:	100 cc. requires	3.7 cc. of water.
5 cc. spirit of strength	15 gm.:	100 cc. requires	3.5 cc. of water.

The importance of fixing the alcoholic strength is shown by the fact that 5 cc. of a spirit made by dissolving 7.5 gm. of camphor in sufficient alcohol (90%) to make 100 cc. has the same precipitating value as 5 cc. of the official Spirit.

The description and tests which we would propose for Spirit of Camphor are as follows:

Keep in a closely stoppered bottle in a cool place.

A clear, colorless liquid, neutral to litmus paper and containing about 85 % of alcohol by volume (84.9%).

Specific gravity about 0.8296 20°/20° C.

Five cc. of the Spirit vigorously shaken in a dry, stoppered test tube with 0.5 gm. of anhydrous Potassium Carbonate should not moisten the latter within one-half hour. (Limit of water.)

Five cc. of the Spirit when cooled to 20° C. and quickly mixed with distilled water of the same temperature should require not more than 4.8 cc. nor less than 4.6 cc. of the later to produce a slight permanent precipitate of Camphor. (Indicating from 9.7% to 10.3 gm. of camphor in each 100 cc. of the Spirit.)

The alcohol and the Camphor should correspond in other respects to their respective tests.

CAMPHOR.

Camphor at the time that it was admitted to the Pharmacopœia had none of its properties mentioned and it is doubtful if standards are contemplated, but as revision succeeded revision useful pharmaceutical knowledge and tests have from

time to time been supplied until in the VIII rev. this has reached a state of approximate completeness. To what additional extent this may be carried is a matter worthy of careful attention. The limit has not been reached, however, and we would suggest the following extensions.

Our experiments lead us to believe that the optical rotation of Camphor should be given in the U. S. P. IX. We have examined refined Camphor from the American Camphor Refining Company, Charles H. Phillips Chemical Company, Charles Pfizer and Company, and H. J. Baker and Brothers, as well as from several Japanese refineries and have in every case found that the rotation when observed in the form of U. S. P. Spirit in a 200 mm. tube at 20° C. with sodium light was within the limits of +8.20° and +8.26°. This would correspond, in absolute alcohol, to (a)_D 15° +42.9° to +43.2°, which corresponds very closely with the figure given in the French Pharmacopœia, (a)_D 15° +43°. It should be noted that the highest figure obtained by us is considerably lower than the figure given in the German Pharmacopœia (a)_D 20° +44° 22°.

We would suggest that instead of the redundant words of the present U. S. P., "it is optically active, being dextrogyrate," that the angular rotation be given at not less than +8.20° when dissolved in alcohol 10 gm.; 100 cc. and observed in a 200 mm. tube at 20° C. with sodium light.

It seems to us desirable to introduce the statement that camphor is insoluble in glycerin and to extend to list of solubilities to include at least Acetone and Glacial Acetic Acid. We think that it would be also appropriate to extend the list of liquefiable substances so as to include Salol, Naphthol, Pyrogallol and Resorcin. (Antipyrine and Salicylic Acid are not included in this list because they do not liquify under ordinary conditions.)

The permissible amount of non-volatile matter at a given temperature should also be stated. We have found no samples that completely volatilized at 110° C. The usual residue is approximately 0.025%.

DISCUSSION.

Dr. A. R. L. Dohme inquired as to the reason for making the requirements for Camphor such as to eliminate the synthetic product. While synthetic camphor was not on the market in such quantity as to make it an appreciable element, it would likely become an important factor in time. It is free from oil and, personally, he could see no good reason why the pharmacopœial requirement should be such as to practically eliminate it.

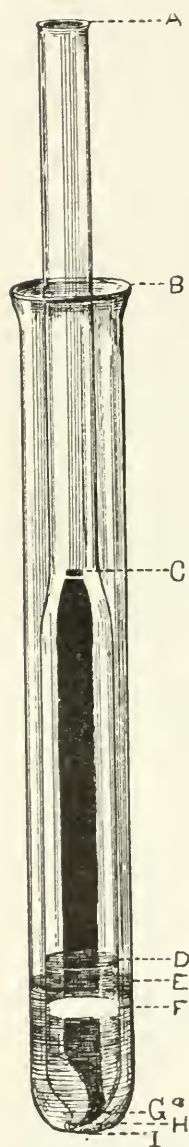
Prof. L. D. Havenhill replied that synthetic camphor had not been included because he did not know of any good reason why it should be included. His recommendations had been guided by the countries where it was manufactured, and since the recent German Pharmacopœia had not recommended synthetic camphor for medicinal use, he could see no good reason why we should take it up.

Mr. M. I. Wilbert thought that before synthetic camphor is included it would be necessary, or at least very desirable, to show that it had the same physiological action as the natural product, since it is a well known fact that closely related compounds do not always produce the same physiological effect.

Prof. Virgil Coblentz gave it as his opinion that there was no difference between the physiological action of natural and synthetic camphor, and that whether one was used more than the other depended mainly upon the market price. Until a few years ago large quantities of crude synthetic camphor had been imported into this country for the making of celluloid, because it was possible to import it with little or no duty.

THE SYNTHESCOPE AND ITS APPLICATION IN THE DETECTION OF ALBUMIN IN URINE.

G. H. MEEKER, PHAR. D., LL. D.



It frequently happens that when a liquid to be tested chemically is brought in contact with a liquid reagent, a peculiar appearance can be seen at the plane of contact between the two liquids. Many chemic tests are so conducted. In general, two methods have been employed for floating the one liquid upon the other, viz., by pouring one liquid down the side of the inclined test tube; and by pouring one liquid through a small funnel tube. In the former of these two methods, a definite plane of contact cannot be produced, while in the latter the production of a definite plane of contact necessitates a special funnel tube with stem of very fine bore.

The synthescope (from *syn*, together; *thesis*, place; and *skopeo*, to see—in other words an instrument for observing the visible effect of placing two liquids in contact) is a simple piece of apparatus for enabling one to make all contact tests with ease and certainty. The size here described is designed for use with the 6" x $\frac{3}{4}$ " test tube. The illustration shows the instrument in use. The test tube originally contained the heavier of the two liquids and a white precipitate has been formed at the plane of contact.

Referring to the figure, AH is the synthescope. It is made entirely of glass $\frac{1}{2}$ mm. in thickness. The length from A to H is 215 mm. and from A to C is 115 mm. The outside diameter at C is 9 mm. and at D is 15 mm. The opaque black background is made of glass and covers $\frac{1}{3}$ of the portion CH of the synthescope. The curved lower end of the synthescope is terminated by a minute orifice, the diameter of which must not exceed $\frac{1}{2}$ mm. This is very important, for if the aperture at H be too large, the instrument cannot give satisfactory results.

The synthescope is used as follows: A small volume of the heavier liquid is placed in the test tube and then heated if so desired. A small volume of the other liquid, hot or cold, is now taken up in the synthescope, using the synthescope as though it were a pipette and taking care not to have a longer column of liquid in the synthescope than is in the test tube. The synthescope and its contents are next plunged to the bottom of the test tube. The finger is now removed from A. This allows the liquid in the test tube to flow into the synthescope and to form a true contact plane. In cases where a true contact plane is important, as in the contact test with nitric acid for albumin in urine, the test should be set aside about five minutes to permit faint reactions to become apparent. In cases where a slight admixture of the two liquids is desired rather than

a true contact plane, a regulated sidewise shaking of the apparatus will give the result. The partial black background permits faint clouds to be observed with facility—the observer being enabled to note the appearance by reflected light against a white background, by reflected light against a black background, by transmitted light, or partially by reflected light and partially by transmitted light according to the procedure which best fits the special test in hand.

THE DETECTION OF ALBUMIN IN URINE.

While the synthescope was designed to be used in any contact test, it finds its most frequent application by the clinician in the detection of albumin in urine. We believe that no test for albumin in urine is so readily conducted or so reliable as Heller's test carried out by the use of the synthescope. This test is conducted as follows:

Pour strong nitric acid into a 6" x $\frac{3}{4}$ " test tube to the depth of about $\frac{3}{4}$ ". Heat the test tube and its contents until the temperature has risen to about fifty (50) degrees Centigrade. No thermometer is needed. Hold the lower end of the test tube in the closed hand occasionally during the heating, and when the temperature becomes as high as it can be without causing discomfort, cease heating. Dip the curved end of the synthescope beneath the surface of the urine to be tested. Be sure that the urine is *perfectly clear*. If the urine be turbid, it must be clarified by filtration before attempting to detect albumin by any method. As soon as the clear urine has risen in the synthescope to the height of about $\frac{1}{2}$ ", place the finger over the upper end of the synthescope; remove the synthescope and its contents from the urine; and plunge the same to the bottom of the test tube containing the warm nitric acid. Now release the synthescope and the nitric acid will run into it, lifting the urine and forming a *sharp line of demarcation* between the urine and the strong acid. Unless the hole in the curved end of the synthescope is very small it will not operate properly. Watch that portion of the urine which is in contact with the nitric acid. If albumin be present, a white cloud will be seen either immediately or within five minutes—according to the amount of albumin in the urine. The cloud can be observed by transmitted light alone; by reflected light alone; or partially by transmitted, and partially by reflected light—according to the relative positions of the source of light, the eye and the apparatus. In this way very faint clouds may be detected.

The cloud given in the above manner, by albumin, shows no granular character—and when once studied carefully, is easily recognized thereafter. Occasionally one finds urine so rich in urates or urea that clouds are formed thereby. Such clouds are granular to the unaided eye; and may be prevented by diluting the urine with its own volume of water before making the test for albumin.

It may be remarked that Heller's test when conducted by pouring urine or nitric acid down the inclined side of a test tube is fallacious. This fallacy arises mainly from the fact that many urines contain enough mucin to give a cloud when the test is so conducted. Mucin can give a cloud only with *dilute* nitric acid and dilute nitric acid must always occur when a true contact plane is not produced. A true contact plane cannot be produced except by instrumental aid, and this aid is furnished with certainty and ease when the synthescope is employed.

THE MICROBURETTE.

G. H. MEEKER, PH. D., LL. D.

The toxicologist in making titrations upon minute quantities of poisons recovered from cadavers, and the clinician in titrating small portions of materials like blood, etc., taken from patients, are often compelled to work upon samples so small that ordinary burettes will not serve the purpose. The microburette, herein described, was designed and is used by me for the above purposes and for microchemical titrations in general.

Reference to Fig. 1 will show the general character of the apparatus, while Fig. 2 shows a detail of the peculiar cock employed. The dimensions and specifications are as follows:

Length over all.....	AI,	325	mm.
Length of graduated portion.....	OP,	225	"
" " portion	DEI,	65	"
" " socket	DEH,	28	"
" " taper	JM,	20	"
" " plane face.....	KL,	16	"
Width of plane face.....	KL,	3	"
" at lugs	DE,	26	"
" at lugs	BC,	16	"
Inside diameter at.....	O,	2.3	"
Outside	O,	7	"
" " "	Q,	9	"
" " "	G,	7	"
" " "	H,	5	"
" " "	J,	6.5	"
" " "	M,	5	"
" " "	F,	1	"
Diameter of outlet at.....			
Distance between graduation units (.01 cc.) about.....		2.3	"

Made entirely of glass.

Glass in graduated portion has white background.

Black register mark at N to show position of longitudinal central line of plane face, KL.

Made in two portions, AM and DEI.

The two portions are first fitted together by an accurately smooth-ground, tapered joint as shown in drawing, after which a plane face is ground off at KL. While grinding this face, test frequently the flow of water from AM, out of M, past the face KL and out of orifice F. When the rate of flow is about .01 cc. per second, cease grinding and polish face KL.

The apparatus is tubular with the exception of the portion HI, which is a glass rod.

Glass must be perfectly smooth throughout, showing no irregularities like sand marks, blowholes or grinding marks.

Total volume graduated 1 cc., divided into 100 parts.

HOW TO USE THE MICROBURETTE.

The liquid to be titred, usually one cubic centimeter or less in volume, is contained in a small glass evaporating dish, in a watch glass or in a small porcelain crucible—accordingly as best suits the end point tint in the particular analysis in



Fig. 1. is a glass rod.

hand. The microburette having been thoroughly cleansed in the usual way, is next thoroughly cleansed with alcohol, ether, alcohol and water to remove any grease—special attention being paid in this respect to the portion DEI. The two parts are now joined and are held together by a small rubber band which engages the lugs, B, C, D and E, and maintains a moderate tension upon the two parts. No burette stand or clamp is employed. The microburette is held in the hand. HI is used as the stirring rod while titrating. A finger, by pressure against lug D or lug E, rotates DEI and in this manner starts or stops the flow of standard solution. When F is not in apposition with KL there is no flow. The flow is established when F and KL are in apposition, which is known by looking at F and at the register mark N. The flow is from M, past KL, out of F and down the outside of the stirrer HI. This flow is satisfactory only when the stirrer has been properly cleansed as described above. In filling the apparatus prior to a titration, use a minute funnel at A. Fill nearly to A and then establish the flow until the level sinks to zero. The stirrer is now coated with a very thin film of standard solution and the titration should be begun at once.

While the microburette will commend itself for its convenience and elegance in use, its main advantage arises from the fact that its flow is partly controlled by capillary action on the outer surface of the portion FI. This feature enables one to deliver small fractions of a drop from the microburette with as much ease as whole drops can be delivered from the ordinary burette. The readings are to 1/200 cc.

In calibrating the microburette and in running test titrations, the assay balance should be employed.

THE ASSAY PROCESSES OF THE U. S. P.

A. R. L. DOHME AND H. ENGELHARDT.

On various occasions we have pointed out that several assay processes of the present U. S. P. are very much in need of being thoroughly revised, both because the methods are rather cumbersome, and the results are far from giving the true percentage of the active principle. Since the methods are to be thoroughly discussed at this meeting we thought it necessary to again give our views in regard to the processes, although several points given here may have been discussed by us on previous occasions.

We still believe that the aliquot part method, when worked with precaution, gives more accurate results than the percolation method. The drug is more thoroughly exhausted by shaking with the menstruum than by percolating. A percolator perhaps is our most unscientific piece of apparatus. A channel might be formed in the packed drug, the parts adjoining this channel may be exhausted, while other parts of the drug come in contact with the menstruum only superficially. The method, besides, is very tedious, especially when such a fine powder

(No. 60) as prescribed by the U. S. P. is employed, and also requires a larger amount of menstruum for the exhaustion.

We, therefore, strongly recommend the adoption of the aliquot part method, having proven by numerous experiments that results by this method compare favorably with those obtained by exhausting the drug completely by percolation.

For the final shaking out of the alkaloids, we recommend to use whenever possible, simple menstrua, viz., ether or chloroform and not mixtures of both in various proportions. As a rule, simple menstrua are less liable to produce emulsions than mixtures, and the menstrua are more easily recovered for future use than mixtures, which always require tiresome adjusting.

For the extraction of the drugs, however, a mixture of ether-chloroform is to be preferred. Such a mixture seems to penetrate the cell-walls better than a simple menstruum, and consequently to extract the alkaloids more thoroughly. It is also recommended to allow the drug to stand with the menstruum for at least one-quarter hour before adding the ammonia, as the results obtained by doing so are somewhat higher, in our opinion, than those obtained by adding ether-chloroform and ammonia to the drug at once.

Whenever possible the alkaloids should be estimated by titration; in some cases when hydrolysis is liable to take place as in aconite, coca leaves, etc., a check by gravimetric estimation might be of advantage.

Of all the indicators for alkaloids, we have found cochineal to be the best, since only in titrating the alkaloids of ipecac is any difficulty experienced with this indicator. Iodeosin, at present used in the U. S. P. is rather unreliable, since the aqueous liquid is not always colored red when the end point is reached, but at times a red scum is formed at the contact of the two layers, the color of this scum increasing in intensity with the addition of the alkali. It is difficult to judge, in case this happens, when the end point is reached.

In regard to the various drugs and the galenical preparations thereof, we beg to offer the following suggestions:

Aconite Root.—To avoid hydrolysis as much as possible, ammonia might be replaced by sodium carbonate or bicarbonate solution. The present process is very tiresome, only in the case of a larger dilution can a somewhat rapid filtration be effected. Keller's aliquot part process, using ether-chloroform and sodium bicarbonate for extracting the drug, and ether alone for the final extraction of the alkaloid, after having made the acid solution alkaline with sodium bicarbonate, gives very good results. The wording, "not less than 0.5 per cent of aconitine" should be replaced by "not less than 0.5 per cent of ether soluble alkaloids," since the residue, although it consists for the greatest part of true aconitine, is always contaminated with other basic substances. The Squibb's test has been found to be too much dependent on individuality.

Extract of Aconite.—No matter how carefully this extract is prepared, a deterioration of the alkaloids is liable to take place, and the physiological strength consequently is largely reduced. Extract aconite should never be prepared. In assaying extract of aconite, the following simple process gives fairly accurate results: Dissolve the extract (2 grams) in 10 cc. of dilute alcohol, transfer the solution to a separator, make alkaline with sodium bicarbonate solution and shake

out with several portions of ether. From the ethereal solution the alkaloids are extracted by shaking with several portions of acidulated water, and from the latter, after making alkaline with sodium bicarbonate, the alkaloids are removed by shaking with several portions of ether. From ethereal solutions, after filtering to remove any suspended bicarbonate, the ether is distilled off, etc.

Fluidextract of Aconite.—Ten cc. are transferred to a separator, made alkaline with sodium bicarbonate, and then assayed as just given.

Tincture of Aconite.—One hundred cc. of the tincture are evaporated at a temperature not exceeding 60° C., the residue taken up in 10 cc. of dilute alcohol, and this solution assayed as given under extract.

Solution of Hydrogen Dioxide.—The method for determining the acidity should be revised. By evaporating 25 cc. of hydrogen peroxide solution to 10 cc. in the presence of 5 cc. of N/10 potassium hydroxide solution, not all the hydrogen peroxide is destroyed. This can be effected only by evaporating the solution in a platinum dish or by adding a suitable catalyzer, such as platinum black, etc.

Asafetida.—Owing to the scarcity of this article, it would be advisable to decrease the percentage of alcohol soluble matter, and to increase the allowable percentage of ash.

Aspidium.—The activity of this drug depends almost entirely on those substances present in what is generally termed "crude filicin". A reliable method has been worked out for determining crude filicin. The microscopic requirements given in the present U. S. P. will be met by a physiologically inactive drug also.

Belladonna Root and Leaves.—The assay process adopted for the new U. S. P., viz., the aliquot part method, has a decided advantage over the present process, and gives very satisfactory results.

Fluidextract and Extract of Belladonna.—The assay processes for these preparations are satisfactory. It is, however, advisable to increase the amounts of both the immiscible solvents, and the acidulated water.

Cantharis and Its Preparations.—These should be assayed; several reliable methods have recently been published. A suitable menstruum for preparing the mixture should also be looked for, as by the present menstruum only about 50 per cent of the cantharidin is extrated from the drug when used in the proportion 1:1.

Capsicum.—We have met with several specimen of inferior capsicum. Why not give and estimate the percentage of oleoresin?

Cinchona.—For the U. S. P. IX, unfortunately, an assay process has been proposed, which is similar to the one now official, differing from it only by the larger amount of menstruum taken for extracting the alkaloids from the drug. Although this is a step in the right direction, we doubt very much whether the increased quantity of menstruum will hold in solution the alkaloids from high-grade drugs. The Fromme process depending on the breaking up of the cells by the use of hydrochloric acid has always given us satisfactory results. It is a short one, and a determination can easily be carried out in two hours. That such a process is of great importance to chemists who have to make a dozen or more cinchona assays at the same time (as in our laboratory, when numerous samples for purchasing the drug are submitted) is obvious. We wish to mention again

that the alkaloidal residue should be dried at a temperature not exceeding 60° to 70° C., as otherwise it is strongly discolored. Any traces of chloroform should be driven off by treating the residue twice or three times with ether. In our laboratory, we invariably control the gravimetric results by titration, because the alkaloidal residue very frequently includes waxy and other substances which naturally increase the weight. The titration when carried out strictly according to Panchaud's direction, is not at all difficult.

Coca.—Here also the percolation process should be abandoned in the assay method. Keller's method, using plain ether, gives very satisfactory results. In case emulsions occur, which frequently takes place on account of the large amount of mucilaginous matter in the drug, tragacanth should be used for breaking up the emulsions.

Cochineal.—It is advisable to include in the U. S. P. a determination of the color strength of the drug, also an estimation of the moisture.

Colchicum Seed and Corm.—We have pointed out on various occasions that the results obtained by the present assay methods are absolutely wrong, that the residue calculated as colchicine contains only about 50 per cent of the alkaloid. The assay processes should be thoroughly revised. Dr. Lyons has given valuable information in what way these processes could be improved. For the estimation of pure colchicine in the alkaloidal residue, several methods are available also. We do not care to go into details about these improvements since we have given a compilation of them some time ago.

Conium Seed.—The assay method for this drug also should be revised. It is very cumbersome and could easily be replaced by a more expeditious process.

Conium Leaves.—This drug, although not official, should never be used. All the samples submitted to this laboratory for examination were almost void of Coniine.

Cubebs.—An estimation of and requirements for the percentage of oleoresin should be given. Cubebs vary considerably in the amount of oleoresin.

Belladonna Plaster.—A few slight modifications of this assay process, which work very well, have recently been recommended.

Ergot.—On various occasions we have mentioned a simple process to estimate the approximate amount of cornutine present in the drug. If it can be proven beyond doubt that the percentage of cornutine is in proportion to the physiological activity, this test should be adopted for the U. S. P.

Ferrum Reductum.—The assay process could be improved on.

Gelsemium and Its Preparations.—Assay processes for these substances have been recommended on various occasions. We believe, however, that such a process is only of relative value as long as the proportion of the active substance to the inactive is not known in the residue determined as total alkaloids. Quite recently a good deal of light has been thrown on the constituents of gelsemium and possibly in the near future an assay process based on the estimation of the active principle alone will be worked out.

Glandulae Suprarenales et Thyroidae.—Colorimetric estimation of the active principles is desirable.

Granatum.—The total alkaloids in pomegranate bark can easily be estimated.

Guarana and Its Preparations.—The assay processes are good.

Hydrastis and Its Preparations.—The amount of golden seal taken for the assay is entirely too large, considering the high percentage of hydrastine in the drug. There is no reason why the assay of the fluidextract should not be based on the same principle as the assay of the drug.

Hyoscyamus and Its Preparations.—All that is said about Belladonna applies to these products also.

Ipccacuanha and Its Preparations.—The amount of drug prescribed for the assay process should be reduced considerably, say to about 6 grams. The assay process otherwise is satisfactory. We have pointed out above that the titration of the alkaloidal residue is somewhat difficult, and it would be desirable to try other indicators which might prove to be more satisfactory.

Jalap.—A shorter process depending on the exhaustion of the root with hot alcohol and taking, after cooling and readjusting the weight, an aliquot part has been recommended by us on a former occasion. In connection with this drug it may be said that the quality of the various samples and shipments during the last twelve months was superior to that in previous years. Would it not be advisable to control the galenical preparations of jalap by simple assay processes?

Kola and Its Preparations.—These should be assayed by a process similar to that given for guarana. To estimate the amount of theobromine, acid instead of water has to be used for extracting the alkaloids from the chloroformic solution.

Malt and Extract of Malt.—It is advisable to give assay processes for the determination of maltose and diastatic power. We have met with numerous samples of malt which were deficient in both respects.

Nux Vomica and Its Preparations.—Keller's aliquot part method, using ether and chloroform, gives fairly good results; it must, however, be admitted that the results obtained by using the U. S. P. menstruum are slightly higher. The amount of the powdered drug can be reduced on account of the high percentage of alkaloids in the drug. It is to be regretted that the U. S. P. IX again shall adopt a method for determining the strychnine. The present official method and the numerous modifications thereof give fairly accurate results only in the hand of experienced workers. We doubt very much that the variation of the proportion of strychnine and brucine in the drug is greater than the variation obtained by assaying the same drug by various chemists. Only such methods should be adopted in the U. S. P. which are simple and give fairly accurate results, and not such ones which require much ability and experience. The U. S. P. is not written for experienced chemists, such as are generally found in the laboratories of the large wholesale houses, but for the retail pharmacist also who very seldom has and will have a thorough experience in assaying drugs. We have mentioned on other occasions that of all the pharmacopœias only the English directs the strychnine to be estimated, and this is done by a method which is still inferior to the old Gerock method and its modifications. We are afraid that by adopting the strychnine determination much trouble and numerous litigations will be caused. If it is important to determine the strychnine alone, why has not a process for

doing so been adopted by the Swiss, German, etc., pharmacopœias, which without doubt are up-to-date works? Is brucine therapeutically absolutely inert, and can it be entirely neglected? In our opinion, the determination of the total alkaloids (which by no means is such a very simple one, on account of the ammonia bases and the soap which are liable to be formed during the assay process) is a better criterion for the quality of the drug than an unreliable and incorrect estimation of the strychnine alone.

Extract of Nux Vomica.—The easiest way of assaying this extract is to convert the extract into a fluidextract by dissolving in diluted alcohol, rendering the solution alkaline with ammonia water, shaking out with several portions of chloroform, etc.

Fluidextract and Tincture of Nux Vomica.—Evaporate the quantity prescribed for the assay to dryness, take up residue in dilute alcohol and proceed as just given.

Opium.—In regard to this drug, we wish to refer to an article submitted to the A. Ph. A. (Proc. A. Ph. A., 1910, page 829) a year ago. There is no doubt that by the present official process almost the entire morphine contained in the drug is obtained, although Delbourdeaux, Journ. de pharm. et chem. VII, IV, 68, claims that by further exhaustion with water still more morphine can be extracted. He also claims that if the crude morphine, as obtained by the U. S. P. process, is not washed thoroughly, lime-water soluble substances are determined as morphine, rendering the percentage of the latter too high. We have obtained very good results with the present method, we think, however, that a shortening of the process would be desirable.

Extract and Tincture of Opium.—The assay methods work satisfactorily.

Pancreatin.—For the assay process the use of potato starch should be recommended. The milk test is unreliable and should be deleted.

Pepsin.—We have at times experienced considerable trouble with the assay process, which apparently was due to the age of the eggs. Recently we have only used eggs five to ten days old, and have obtained with such material rather concordant results. At the Indianapolis meeting of the Am. Chem Soc., a paper will be read dealing with the use of dry egg albumin in the assay process of Pepsin. If the results obtained by using dry albumin are encouraging, this modification should certainly be tried by the Revision Committee. Dry albumin can more easily be obtained in a uniform quality than fresh albumin, which contains a varying amount of water, according to the age of the eggs.

Physostigma and Its Preparations.—Slight modifications as to the quantities of immiscible solvent and acidulated water should be made.

Extract of Physostigma.—The use of sand and evaporation to dryness is to be avoided. We prefer to use powdered glass and to evaporate the liquid until the alcohol is expelled. Such a moist mass can be transferred to a bottle much easier than the hard mass obtained by the official process. Results just as accurate can be obtained by converting the solid extract into a fluidextract by dissolving it in dilute alcohol, rendering alkaline with sodium bicarbonate shaking out with ether, etc.

Fluidextract and Tincture of Physostigma.—The modifications just mentioned apply to the assay of these preparations also.

Pilocarpus and Its Preparations.—Replace the percolation process in the assay method by the aliquot part method. In case emulsions should be formed, use tragacanth for breaking up.

Fluidextract and Extract of Pilocarpus.—The modifications suggested under physostigma apply to the assay processes of these preparations also. Fluidextract of pilocarpus can be assayed by shaking out directly with chloroform after making alkaline with ammonia. Emulsions which are liable to be formed can be avoided by using a large amount of chloroform.

Piper.—The percentage of oleoresin should be determined.

Podophyllum.—Podophyllum with less than 4 or 4.5 per cent of resin is frequently met with on the market. An assay process for this drug therefore seems necessary.

Fluidextract of Podophyllum.—The percentage of resin should be determined.

Sanguinaria.—An estimation of the total alkaloids of blood-root might be valuable, although such a determination possibly does not indicate the therapeutic value of the drug.

Scopola and Its Preparations.—All that is said in regard to belladonna applies to this drug also.

Sinapis.—An estimation of allylthiocarbamide can be recommended.

Stramonium and Its Preparations.—See modifications recommended under belladonna.

Strophanthus.—There is no reason why this potent drug should not be assayed. A reliable process has been worked out.

Veratrum.—An estimation of the total alkaloids has been recommended on various occasions.

In conclusion we wish to say again that we hope that in the U. S. P. IX such assay methods will be adopted as are easily carried out, with the simplest apparatus, and in as short a time as possible, which, however, give at the same time reliable results, not theoretically accurate but practically accurate.

DISCUSSION.

Prof H. M. Gordin thought that since both the percolation method and the method of aliquot parts had merits and demerits, it was advisable to combine them so as to produce a method containing the merits of both.

Prof. L. D. Havenhill was doubtful as to the possibility of combining both processes. He agreed that percolation was the most uncertain process and would like to see it banished from pharmacopœial assays. In the hands of the average pharmacist he believed the aliquot part method would yield the better results.

Mr. F. R. Eldred agreed that the percolation method required the most careful manipulation, and for that reason would expect that novices would obtain better results by the aliquot method than by percolation; on the other hand, he thought that when the assayers were properly skilled better results could be obtained by percolation. He did not believe that the analytical objection of channeling would apply to this form of percolation as it did to the percolation of drugs on a larger scale. In his experience he had never had any trouble in exhausting the drug, though it is necessary to be sufficiently skillful to know when extraction is complete.

Mr. L. E. Warren agreed with the statement of Mr. Eldred. He had never found any difficulty in percolation of a drug or in determining when a drug had been exhausted.

Mr. C. E. Vanderkleed said that in his extended experience the aliquot part method had proved to be satisfactory, and he could not see any profit in trying to improve upon something that was giving entire satisfaction. The aliquot method had the great advantage of consuming less time than the percolation method, though with certain menstrua there is a possibility of error, as for example, in the extraction of cinchona bark, where in 5 volumes of water and 5 volumes of alcohol in 100 cc. one-half of the extracting liquid would not necessarily be represented by 50 cc., but probably by less than 50.

Dr. George F. Payne was strongly in favor of the aliquot part method, because the saving of time and convenience of handling the work was considerable, and he had used it almost exclusively in making a large number of assays in state work. It had the additional advantage in providing the analyst with a reserve portion of liquid in case of the loss of the first portion taken because of a broken flask or beaker, etc.

Dr. J. M. Francis and Prof. C. H. LaWall also expressed their preference for the method of aliquot parts.

Prof. Charles E. Caspari said that he was also in favor of the aliquot method, but not for the reason expressed by Dr. Payne. He did not believe it wise to infer that a remaining portion of the liquid represented exactly the first portion taken, since in the majority of cases after the operator has used the first portion he fails to take proper care of that remaining. As a concrete example he cited the assay of *Nux Vomica*, where it was difficult to pour off the first portion without stirring up the solid matter in the bottom of the flask. If the first determination is lost it would be necessary, or at least advisable, to percolate or filter the remainder and to use a still smaller aliquot portion, and he did not believe that in such cases the remaining portion could be relied upon to give a fair basis for comparison.

Prof. A. B. Stevens said that in drug assay work we must not expect such exact results as in the assay of inorganic salts, like those of silver. In the use of aliquot parts there is a little loss by evaporation while measuring the aliquot part, but the error is slight and not so important as that the method should give uniform results. The principal object in proximate assay work is to exclude drugs of inferior quality. In most cases the *Pharmacopœia* requires that drugs and preparations shall not be below a certain specified strength, but do not exclude those of higher alkaloidal content.

In reply to a question by Dr. Francis, he stated that if he were allowed but one indicator for all purposes he certainly would prefer cochineal.

Prof. E. V. Howell mentioned a plant which in his section was known as "Blue Bottle," "Baby's Breath" and "Cow's Breath," the tincture of which was very sensitive to acids and alkalies. One drop of a centinormal solution of alkali would change it from red to green; or one drop of a centinormal solution of acid, from green to red. He used the flowers but the stems were also available. He mentioned it with the hope that some one doing a good deal of analytical work would try it out as an indicator.

Prof. A. B. Stevens said that the principal objections made to the U. S. P. method for the assay of *Aconite* were the difficulty of filtration and length of time required for evaporation, both points of which are very easily overcome. He had assayed *aconite* obtained from many sources and had no trouble whatever in filtration where he followed the method published by him some years ago of adding about 10 gm. of pumice stone. In evaporation all that is necessary is to drive off the alcohol, which materially reduces the time required. In a number of experiments he had not found that a somewhat higher temperature had an injurious effect upon the active constituent and believed that a long, slow evaporation was more injurious than rapid evaporation at a higher temperature.

When ammonia was added to *aconite*, ether or chloroform would not exhaust the drug using the complete extraction method by percolation. He had tried various mixtures of ether, chloroform and alcohol; alcohol and ammonia, and alcohol 70 parts to water 30 parts. He had formerly thought that alcohol was a better solvent than a mixture of alcohol and water, but after experimenting had found that a mixture of 70 parts alcohol and 30 parts water was really better.

In a number of experiments tried on the same sample of *aconite*, with chloroform and ether, and ether alone, and the pharmacopœial mixture without ammonia and with ammonia, he had found that invariably the present solvent gives the best results. For illustration, the residue

from the pharmacopœial assay was physiologically active when dissolved in water in the proportion of 1 part aconite to 1400 of solution, while the residue from the ether-ammonia assay was not active in solutions greater than 1 to 1200.

Prof. Charles E. Caspari referred to a recent paper on Pepsin Assay, and stated that two different investigators had apparently proved that pepsin exerted its greatest action on egg albumen when the egg was about eight days old, after which the activity decreased until about the twentieth or twenty-first day.

Prof. Virgil Coblenz referred to the employment of dried albumin in testing pepsin, and said that physiologists had generally adopted dried blood fibrin for this purpose. It possesses the advantage of uniformity, can be reduced to powder of any degree of fineness, and dried to any degree desired. After testing with pepsin the undigested excess can be removed, washed and dried, thus placing the testing of pepsin on a more nearly quantitative basis.

STANDARDIZATION OF SOLUTIONS FOR ALKALOIDAL ASSAY.

A. B. STEVENS AND A. F. SCHLICHTING.

It occurred to one of us that some of the variations in results obtained by chemists when assaying the same sample of drug, might be due to different standards used in preparing their standard solutions, possibly also to the indicator used. This suggested that it might be interesting and instructive to determine to what extent these factors affect the results, when conducting experiments under exactly the same conditions as to temperature, apparatus, etc.

A quantity of solution of potassium hydroxide was prepared, as nearly N/50 as convenient. The exact factor was then determined by means of the various standards used by chemists in drug assay. In testing these standards phenolphthalein was used as an indicator. The results are given in factors for the potassium hydroxide.

Standard	Potassium Bitartrate	Oxalic Acid	Succinic Acid	Sulphuric Acid	Hydrochloric Acid
KOH Factors	{ 1.0561	1.0643	1.0638	1.0035	1.124
	{ 1.0613	1.0627	1.0683	1.0057	1.112
	{ 1.0629	1.0625	1.0706	1.0083	1.113
	{ 1.0584	1.0611	1.0661	1.0972	
	1.0571	1.0618	1.0661	1.1006	
Average	1.0592	1.0625	1.0669	1.0962	1.115

Bear in mind that these results simply show the relation of one standard to another, or the variation between standards used.

Oxalic acid is preferred by some but has fallen into disrepute because it contains water of crystallization, a portion of which might be lost during drying, to free it from adhering moisture. Succinic acid is free from water of crystallization, hence can be dried without loss. The principal objection that can be raised to any of these for alkaloidal assays, is the fact that one indicator must be used in the standardization of the alkali, and another in the actual assay. It is proposed to overcome this objection by the use of pure anhydrous morphine as a standard. Morphine does not readily give up its water of crystallization. It requires a tem-

perature of about 110 degrees C. for several hours, and this darkens the morphine. It is also possible that some of the morphine has been decomposed. We prefer to use crystallized morphine, freed from adhering moisture by placing the powdered morphine in a desiccator for a few hours. A sample of crystallized morphine kept in a vacuum desiccator for twenty-four hours failed to lose weight, while a sample of oxalic acid kept in the desiccator for the same length of time lost nearly all of its water of crystallization.

A given weight of dried crystalline morphine was dissolved in a definite volume of standard sulphuric acid, and the acid actually combined with the morphine determined. From these results the acid factor was calculated. The average from several determinations was 1.0035 with cochineal, and 1.004 with methyl red. Compare these results with those for sulphuric acid under indicators. While we prefer morphine as a standard for alkaloidal assay, we feel that it has not sufficient advantage over potassium bitartrate to warrant a change from our present official standard.

INDICATORS.

Experiments were made to determine the variation in the results due to the use of different indicators. In the first series of experiments the potassium hydroxide solution was standardized by potassium bitartrate. In the second series by oxalic acid, and in the third series by succinic acid.

SULPHURIC ACID FACTORS.

FIRST SERIES.					
Phenolphthalein	Hæmatoxylin	Cochineal	Methyl Red	Iodococsin	
1.0014	0.9904	0.9808	0.9793	0.9798	
1.0064	0.9906	0.9798	0.9800	0.9766	
0.9999	0.9925	0.9802	0.9793	0.9766	
Average	1.0025	0.9912	0.9803	0.9795	0.9777
SECOND SERIES.					
1.0045	0.9934	0.9839	0.9824	0.9826	
1.0096	0.9941	0.9826	0.9829	0.9796	
1.0039	0.9955	0.9832	0.9824	0.9796	
Average	1.0057	0.9943	0.9832	0.9826	0.9806
THIRD SERIES.					
1.0079	0.9968	0.9872	0.9857	0.9861	
1.0130	0.9974	0.9861	0.9862	0.9828	
1.0064	0.9989	0.9863	0.9857	0.9828	
Average	1.0091	0.9977	0.9865	0.9859	0.9839
Sulphuric acid factor obtained by use of morphine.					
	1.0164	1.0015	1.0015		
	1.0190	1.0029	1.0015		
Average	1.0177	1.0022	1.0015		

After a careful study of these results we recommend the use of crystalline morphine as the standard for alkaloidal assay because it may be readily obtained pure, of definite composition, and also because the same indicator may be used throughout. Next to morphine we prefer succinic acid because it is free from water of crystallization, dissolves readily and is easily titrated. Potassium bitartrate is preferable to sulphuric acid or hydrochloric acid, because it is more easily

prepared, is always ready for use, and is equally, if not more accurate. In any case a definite standard should be stated and adhered to.

When possible, the same indicator should be used throughout. If this cannot be done then use the same indicator for standardizing the acid that is to be used in determining the excess of acid.

ALIQOT PARTS.

The statement has been frequently made that the use of aliquot parts, in the hands of experts, gives results which compare favorably with those obtained by the complete extraction method, but that this would not be true in the hands of less experienced chemists. The writer has never seen or heard of an attempt to prove this statement. He therefore selected six students, none of whom had more than a short course in drug assay work. One of them had not made more than a half dozen drug assays and had not even received instructions in assay work. They were given directions for the assay of scopolamine and cinchona by both methods and without further instructions than that they were to make duplicate assays as carefully as possible. They were not told the object of the assays. The results obtained are as follows:

SCOPOLAMINE		CINCHONA	
Aliquot Method	Percolation Method	Aliquot Method	Percolation Method
0.31	0.35	5.57	5.88
0.31	0.35	5.725	5.93
0.263	0.27	5.242	5.73
0.258	0.285	5.068	5.328
0.263	0.289	6.02	7.03
0.283	0.299	5.785	6.013
0.336	0.304	4.955	5.236
0.336	0.305	5.03	5.464
0.29	0.230	5.555	5.692
0.278	0.263	5.576	
0.310	0.294		
0.272	0.284		
Maximum ... 0.336	0.350	6.02	7.03
Minimum ... 0.263	0.238	4.955	5.236
Difference .. 0.073	0.112	1.065	1.794

DISCUSSION.

PROF. STEVENS: "The last page contains some figures which show the variation in results obtained by inexperienced workers when using aliquot parts and the complete extraction method. In addition I will place upon the board some results taken from Dr. Kebler's report on "The Status of Drug Assaying." A. Ph. A. Proceedings, Vol. 58. On page 858 we find the per cent. of variation in results obtained by different workers when using both methods, as follows:

Aconite Root.	Total extraction.....	20%	Aliquot parts....	25%
Belladonna Leaves.	" "	20%	" "	10%
" Root.	" "	15%	" "	5%
On pages 869, 871, we find:				
Aconite Leaves.	Total extraction.....	51.7%	Aliquot parts....	14.8%
" Root.	" "	38.1%	" "	48.3%
Belladonna Leaves.	" "	38.6%	" "	16.4%
" Root.	" "	28.0%	" "	9.8%
Cinchona Yellow.	" "	21.6%	" "	11.1%
(Total alkaloids)				
" Red.	" "	14.5%	" "	11.3%
Coca.	" "	46.5%	" "	54.4%

"These results from Dr. Kebler's report are especially interesting when compared with those presented in the paper, as the former may be said to represent the work of trained chemists, while the latter represents the work of inexperienced chemists. With both classes of operators we find that in the majority of cases the variation in results are less when aliquot parts are used. However, with equal care, I believe that the difference between the two methods is not very great, so that if either method is used in the next revision of the Pharmacopœia there will be but little ground for criticism.

"The causes for error when using aliquot parts are: First, inaccuracy in measuring, and second, loss by evaporation when pouring the volatile solvent on the drug and again when measuring the aliquot part. To reduce this to a minimum the solvent should be cooled before measuring, and again reduced to the same temperature before measuring the aliquot part. It appears, however, that the error due to these causes is no greater than the error due to imperfect extraction, when using the total extraction method. Different results are frequently obtained by different operators when using the potassium mercuric iodide test to ascertain if the drug is exhausted."

THE PLACE OF THE JOBBER.

Of course, in the last analysis, the existence of the jobber depends, as it does with all others, upon his proving himself worthy of his hire. In business no men or methods can survive in a struggle with other men and other methods that do the work more cheaply and efficiently.

As long as a territory is sparsely settled its business does not justify manufacturers in sending out their own salesmen. The trade is handled by wholesalers. As soon as the territory becomes populous and prosperous, the manufacturer naturally begins to consider whether or not it is more to his advantage to deal direct with the retailer or through the medium of a jobber. This sort of situation is continually recurring, and the manufacturer's decision is made in terms of *cheapness* and *efficiency of service*, whether he advertises or not. In a situation like this, if the wholesaler cannot prove himself worthy of his hire, he loses his customers.

The manufacturer who wants to do away with the wholesaler has a man's job in front of him. Suppose, for example, he decides to do away with jobbers in the Middle West. The first thing he can count on is a loss of anywhere from 10 to 50 per cent of the trade—no very alluring prospect. Next, he must take upon himself the expense of a big selling force, of a vastly complicated shipping problem, of new storage warehouse facilities, of much increased bookkeeping and credit departments, and he must accept in the place of three or four large ledger accounts, which are as good as gold, several thousand petty accounts in which the risk of loss is problematical. Furthermore, he must induce the retailers to accept all the troublesome complications which come from buying from many concerns instead of from one.—*McPike's Bi-Monthly*.

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

REPORT OF THE COMMITTEE ON NATIONAL LEGISLATION.

(LEGISLATIVE YEAR 1910-1911.)

The one act of this Committee, or of its Chairman, that needs to be reported is the part taken by it at a hearing of the so-called Foster Bill, a bill to place the control of narcotic drugs in the hands of the Commissioner of Internal Revenue. The hearing was before the Committee on Ways and Means of the House of Representatives, during the last regular session of Congress.

The details of the two hearings upon this bill have been widely published and the memorial presented by your Chairman is herewith attached.

Probably of more importance and of largely more helpfulness to the Chairman was a careful conference had by him with that very able, most agreeable and much experienced representative of pharmacists, Mr. W. S. Richardson, of the city of Washington, Chairman of the Committee on National Legislation of the National Association of Retail Druggists.

Although your Committee cannot claim the accomplishment, or part in the accomplishment of any matter of direct importance, it is hoped, by the Chairman, that *his* closer contact with legislative affairs and *his* more thorough study of conditions and of the position of this Association, respecting its very catholic membership, will enable him to make suggestions, prompted by his observations, which will claim such thought and consideration as will, finally, lead the Association to further its original and professed objects.

The first and most fundamental recommendation is that we be serious. For the sake of all that is right and true, let us be serious about serious matters and, especially, about legislation. Nothing would seem to be so capable of impressing the Association with the seriousness of this part of its work as a veritable company of ex-chairmen of your Legislative Committee. They know and feel, and they have ably and forcefully shown their knowledge and feelings in their reports; they *must* evince earnestness, if they half-way do their duty. But, what does the Association give in return for this care, this earnestness, this enthusiasm? Scarcely a patient hearing; and the half-hearing ends, mayhap, in a lark! This Chairman is not pleading for himself, neither for his illustrious predecessors, but for the Association that it, through its members, may meet its grave responsibilities in respect to the law, both as to its enactment and its enforcement. We cannot, however, treat a subject seriously that we do not understand and, of course, we cannot understand it without study.

Would you know the power and import of command, of authority, which is law? If so, witness what has followed the very first law. "Let there be light"—Do you know what impress has been made on man and his character by the Decalogue? Whether you be orthodox or not, you respect the broad, elevating, helpful principle involved in the command, "Thou shall love the Lord, thy God.

with all thy heart." Neither will you deny the benefits that follow obedience to the law, "Love thy neighbor as thyself." Undoubtedly, civil and moral laws are the very foundation of social peace and moral development and, because this is so, all that is done with the law must be most seriously done.

If you would know and know well all that you are required to know, fundamentally, of law, as it relates to pharmacy, then study well the report of this same Committee, written by that wise, true and lovable man, Oscar Oldberg, and presented at the Hot Springs Meeting in 1908. It is not yet too late to do justice to that report; it should be used as a text-book in our colleges and should be the foundation for an examination for those seeking places on our boards of pharmacy.

The next recommendation is that this Association study itself to the end, that it may, properly and effectively, take part in this very serious work of promoting, amending or retarding legislation. The observation of your Chairman enables him to tell you that, in striving to carry out your very indefinite instructions, regarding the Foster Bill, at the hearing, he was, as an individual, among other individuals, none seeming to be working for exactly the same end. The divisions of pharmacy, as represented in the membership of this Association, were as numerous as there are divisions. Listen to the list: wholesale association, retail association, this mixed body of ours, the government bureau of chemistry. State pharmacy board, local pharmaceutical association, food and drug commission. Individual wholesaler, individual manufacturer, individual manufacturing chemist, individual retailer. A remarkable discordant set, all of whom should have been, in some way, represented by a uniform body. Is it not, in view of this mixup, the business of this Association to study its own character and organization before it goes further into this work? It surely needs to be better and more differently organized, that it may become more thoroughly representative of pharmacy, as a whole. It is suggested that, at least, a legislative conference be established under its auspices, where, possibly, the differences of the drug trade may be harmonized and where the true and vital interests of all may be conserved; a clearing house for legislative problems and a "backer" for all good legislative paper. This is a serious proposition, seriously presented. Something *must* be done so that even one little man, representing this great Association, shall have much more force, worlds more force than an authenticated individual. Otherwise, the American Pharmaceutical Association must lose prestige as holding legislative influence.

Undoubtedly, the impracticable organization of the Association for present usefulness may be rendered, to a degree, less hurtful by the formation of the suggested legislative conference, a conference sensibly more representative of American pharmacy.

This Association is quite competent to organize and hold together such a conference, which should be made up of, say, five conferees from each national association and one from each of the several state associations, with the Chairman and Secretary of the Section on Education and Legislation, acting as such for the conference. The size of the conference could not be objectionable, since the representatives *present* would constitute a quorum and the absence of representation from any quarter could not be blamed upon the scheme, but must, neces-

sarily, be a fault of the body not represented. Under such arrangements, there could be no just disagreement with the action of the acting conferees.

It is well known that there is not sufficient time offered, during the meetings of the Association, to make it possible to discuss the details of pending and proposed legislation and, for this reason, especially, is it desirable to form some such conference, which could meet at a more central location and take ample time to properly handle all important matter of national legislation. Oldberg truly says, "Only experienced pharmacists, who have given this subject serious and thorough study, can be safely trusted to construct wise, just and effective pharmacy laws." Abundant evidence may be produced to show the failure of those outside of pharmacy to properly meet the requirements of the situation, in this regard. As has been so often and so variously said, "If pharmacists do not present proper and necessary legislation to control and regulate pharmacy, then others, less competent, will offer and promote such legislation."

Let there be no delay in the permanent formation of "The Legislative Conference of the American Pharmaceutical Association." Let it be as large, as active and as effective as its wonderful and sublime possibilities demand. Awaiting its wise treatment and disposal are many important subjects. Among many others are the following pending bills:

First. The amendment of the Pure Food and Drugs Act, whereby better regulation of the vicious nostrum is to be secured. This certainly merits careful consideration and earnest support.

Second. The bill to place control of narcotics in the hands of the Commissioner of Internal Revenue. Certainly, this is a most important and far-reaching piece of legislation, that needs the very best treatment it can have by those so directly interested, from many points of view. Chairman Richardson makes valuable suggestions, when he favors that order of things, which would make the Retail Liquor Dealers License include all charges for handling narcotics by pharmacists. He also thinks a personal bond, by the pharmacist or small dealer, sufficient and that compounds containing but small quantities of alcohol should be exempt from the operations of the proposed law.

Third. The bills to provide a Department of Public Health. In connection with this measure, pharmacy, in certain quarters, has discredited itself in the eyes of wise and benevolent people. This Association should make no such mistake and should openly and earnestly advocate the passage of the bill, not only in the interest of the public weal, but in the interest of pharmacy as well.

Fourth. Patent and trade marks. Though of far less importance, this is still an unfinished subject of legislation, to which our "Legislative Conference" might give many hours of painstaking deliberation.

Fifth. Parcels Post. It may be safely considered whether or not pharmacy, in part or as a whole, should separate itself from all those interests and the great mass of intelligent people, who are so strongly and so generously advocating its introduction. "The lion in the path of progress," is a very unattractive beast and we should not be happy in his company."

No matter how we may feel toward any of these subjects, which, in various forms, are persistently knocking at the doors of Congress, they are national in scope and are therefore, large in importance, claiming serious and careful consideration from this Association and its members. They so vitally concern pharmacy and its votaries as to make it imperative that *the very best means we can command or create* should be used in their happy settlement.

H. P. HYNXON, Chairman.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

A NEW COLOR FOR USE IN PHARMACEUTICAL AND TOILET PREPARATIONS.

CHARLES H. LA WALL.

While recently making some experiments with different harmless coloring agents for use in toilet preparations, such as tooth washes, antiseptic solutions, etc., I made use of one which has an extended and increasing employment in food products and confectionery, but which is practically unknown in pharmacy, so far as I have been able to learn, and as it would seem to merit consideration for such purposes I wish to bring it before the members of this Section.

The name of this color is sulphonated orchil or archil (sometimes called orcin), but in the trades where it is usually employed it is sold under the vague and somewhat misleading name of "Vegetable Red."

Archil is a particular form of the coloring matter derived by the ammoniacal fermentation of certain species of lichens of the genera *Rocella* and *Lecanora*, and probably several others. Prepared in paste form from the foregoing sources the color is known as archil. When it occurs in a somewhat drier condition it is known as persis. In the dry powdered form it is known as cudbear, and this is the form which is most largely known and used in pharmacy. It is an interesting fact, unknown to most pharmacists, that litmus is produced from the same source by adding potassium or sodium carbonate during the fermentation.

The paste archil, when in the unmodified form, has about the same coloring properties as cudbear, but it has been found that by sulphonating it a modification is produced which is very much more effective and satisfactory as a coloring agent. This sulphonation, however, removes it from the class of purely vegetable compounds, and according to some authorities, the presence of the sulphonated color must be declared the same as a coal tar color.

It produces about the same shades and is subject to about the same changes in acid and alkaline media, as cudbear, with the noteworthy difference that it appears to be much more permanent. For instance, an alkaline antiseptic solution, colored with cudbear, when mixed with solution of hydrogen dioxide solution, becomes decolorized in a very short time, while if sulphonated orcin is used to produce the color, the latter is scarcely affected by solution of hydrogen dioxide, even after twenty-four hours' standing.

For private formulas and unofficial preparations, therefore, it may prove to be of value. The cost of the article is the only disadvantage, as it costs from \$4 to

\$5 per pound, while having little or no higher coloring power than cudbear; its advantage over that color being its greater permanence.

DISCUSSION.

Mr. C. M. Ford stated that every pharmacist is disgusted with cudbear as a coloring agent because of its varying quality. About the only way he can secure uniformity is by buying a large quantity and keep using from that supply. When he gets a new supply he must experiment to get the color he wants. The cudbear obtained from one source will differ greatly from that obtained from another.

Mr. Raubenheimer said that he and Mr. Gardner had a paper on the same subject which they hoped to present at the next session.

In a prescription calling for one ounce of hydrogen peroxide solution and three ounces of alkaline antiseptic solution, he found it did not bleach.

The process he used for making the antiseptic solution was the excellent process which will probably be adopted in the next edition of the N. F., namely, to macerate 2 gm. of cudbear in 1000 cc. of the solution.

Hydrogen peroxide solution in the proportion of 1 to 3 does not bleach the red color of the alkaline antiseptic prepared in this way.

Mr. Sass said that alkaline antiseptic solution made with the tincture would, after standing for some time, become lighter in color and form a white precipitate in the bottom. If the solution be macerated with $1\frac{1}{2}$ gm. of powdered cudbear for six days the color would remain indefinitely.

Mr. Cook stated that orcein had been used by him very satisfactorily, but was very expensive, though only a trace was needed to give sufficient color.

The Committee on National Formulary had been experimenting with color standards and would adopt the expedient of using powdered cudbear with maceration.

THE MODERN SLAUGHTER OF THE INNOCENTS.

The educational system of today is a monumental institution dedicated to Hurry. The children are forced to go through a series of studies that sweep the circle of all human wisdom. They are given everything that the ambitious ignorance of the age can force into their minds; they are taught everything but the essentials,—how to use their senses and how to think. Their minds become congested by a great mass of undigested facts, and still the cruel, barbarous forcing goes on. You watch it until it seems you cannot stand it a moment longer, and you instinctively put out your hand and say: "Stop! This modern slaughter of the innocents must *not* go on!" Education smiles suavely, waves her hand complacently towards her thousands of knowledge-prisons over the country, and says: "Who are you that dares speak a word against our sacred school system?" Education is in a hurry. Because she fails in fifteen years to do what half the time should accomplish by better methods, she should not be too boastful. Incompetence is not always a reason for pride. And they hurry the children into a hundred text-books, then into ill-health, then into the colleges, then into a diploma, then into life,—with a dazed mind, untrained and unfitted for the real duties of living.—*William George Jordan.*

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

MATERIA MEDICA MONOPOLY A HINDRANCE TO MATERIA MEDICA SCIENCE.

F. E. STEWART, M. D., PH. G.

I have recently returned from an extended trip to the Pacific coast, going by way of the Santa Fe and Grand Canyon of Arizona on the A. M. A. special to attend the meeting of the American Medical Association at Los Angeles, and from thence up the coast to San Francisco, Portland, Seattle and Vancouver, and returning via the Canadian Pacific Railroad, stopping over at Glacier, Field, Laggan and Banff, thence on to Minneapolis and St. Paul, to Chicago and from there back to Philadelphia by the Pennsylvania Railroad.

As chairman of your Committee on Patents and Trademarks, I took occasion to confer with physicians and pharmacists at the Los Angeles meeting, and all along the way. And, as I was constantly traveling with prominent physicians, many your personal acquaintances, and thrown into close daily association with them during the trip both on the train and in the hotels going and coming, I had abundant opportunity to learn their views.

One of the subjects upon which we frequently conversed, is the disgraceful state of affairs existing in our materia medica supply business. Tens of thousands of alleged new remedies have been introduced and advertised as therapeutic inventions and discoveries during the past fifty years, and not one tenth of one per cent of them have proved of any special remedial value. These introductions represent hundreds of thousands of useless experiments on the sick by physicians in hospital and private practice, and many more such failures in domestic practice by the self-medicating public. The result has been very disastrous to medical and pharmacal practice, for the people, disgusted with this lamentable history of failures, are turning to the many drugless cults for relief. Now what is the cause of this disgraceful condition? When one considers that medical and pharmacal ethics require physicians and pharmacists to donate the inventions and discoveries made in the practice of their professions to the common fund, and realizes that every one of those tens of thousands of alleged inventions were during the history of their introduction controlled by patents, so-called trade-marks or secret processes, the cause is not hard to discover. The condition is largely due to the ethical lapses of the medical and pharmaceutical professions. This fact was generally recognized by all concerned.

We have departed so far from the professional ideal that it is believed by some that we can never return. Why donate our inventions and discoveries to the common fund? Why not appropriate them for personal gain? Why not individually

monopolize them and reap a financial reward by advertising their virtues? To return to the professional ideal would spell ruin to the medical and pharmaceutical press depending for an income upon the advertising patronage of the manufacturers, and force us all to pay more for our journals. It would spell ruin to the manufacturing houses, depending as they do largely, upon the commercial introduction of these so-called new remedies.

This objection has a very poor foundation. Monopoly of products is not necessary to the existence of advertising. On the contrary, monopoly means only one advertiser for each product. Competition means many advertisers—as many advertisers as there are brands of products.

Neither is monopoly of products necessary to the existence of manufacturing houses who advertise. On the contrary, when there is no monopoly of products cooperation between the medical and pharmaceutical professions and their educational institutions—professional societies, colleges and press—in developing the knowledge of new products, is rendered possible. Such cooperation divides the burden of expense between professional and commercial interests, and thus greatly decreases the cost of commercial introduction imposed upon manufacturers under existing conditions.

When products are monopolized and introduced by advertising, progress in materia medica science and in the arts of preparing and applying medicine to the healing of the sick is greatly hindered. The press can hardly be expected to publish articles in their reading pages which create a demand for monopolized products. Such articles belong in the advertising columns. And it is not to be expected that publishers of medical journals will injure their advertising patronage by publishing untoward reports. Furthermore, it is because materia medica science is not promoted by such discussions that the appalling condition of the materia medica supply business exists.

If the professional press continues to refuse to discuss monopolized products, what shall we do about it? Shall we take measures to force the press to discuss monopolized products? Or shall we take measures to put an end to the monopolies? Or shall we leave things as they are and let them take care of themselves? The latter plan has been tried long enough judging from the disastrous and disgraceful history of the so-called “new remedy” business.

In dealing with this subject, it is important to recognize the distinction between products and brands of products. Quinine is a product. There are as many brands of quinine as there are manufacturers of that product. I believe that every materia medica product—medicinal drug, chemical or preparation—and the currently used name of the same, should be placed on the same basis as quinine. Just as we are in position to discuss quinine without discussing any particular brand of quinine, so we should be in position to discuss every new product introduced to the materia medica.

The advertising of brands of quinine in medical journals in no way hinders progress in science because the journals accepting the advertisements can impartially discuss quinine in their reading pages without being accused of being purchased by quinine manufacturers if they admit paper recommending that product, or running the risk of reprisal if they publish papers dealing with its untoward effects.

On the other hand, monopoly of products gives the commercial introducers control of the publication of knowledge concerning the products, and we have an anomalous condition created in which persons, firms and corporations engaged in the manufacture of monopolized products—ignorant alike of the nature of disease and its treatment—are engaged in teaching the medical profession drug-therapeutics. It is the blind leading the blind. Is there any wonder that both fall into the ditch?

Personally, and after more than a quarter of a century of experience behind the scenes, I am satisfied that with possibly a few exceptions, *materia medica* monopoly is not only contrary to ethics and a menace to science, but is likewise unnecessary to the success of honest commercial service.

Diphtheria antitoxin was introduced to science as a free product. Almost simultaneously, several brands appeared on the market. Thus cooperation between professional and commercial interests was secured in promoting knowledge concerning it. Knowledge of the methods of preparation and of its therapeutic properties, was rapidly developed by impartial discussion in medical and pharmaceutical societies, colleges and press. The advertising of brands of diphtheria antitoxin in medical and pharmaceutical journals in no way hindered the free discussion of the product itself in the reading columns of the journals. The manufacturers of the several competing brands, through their experts, contributed a large amount of knowledge concerning the product, which promoted progress in science and in the art of manufacturing and using diphtheria antitoxin as a therapeutic agent. At the same time, the manufacturers contributed a large fund to the medical press itself through their advertising patronage, which naturally aided in disseminating accurate knowledge concerning it to the medical profession.

Here we have in marked contrast the commercial and professional systems as applied to the *materia medica* supply business. The commercial system with its monopoly of product and control of knowledge concerning it by persons interested in its sales is not to be for a moment compared with the professional system with its cooperative research by many impartial investigators working under conditions of environment which eliminate local influences and errors due to the personal equation.

Contrast the history of adrenalin with diphtheria antitoxin. The former was introduced as a monopolized product; the latter as a free product. Prior to the commercial introduction of adrenalin, Von Fürth, Abel and others demonstrated many of the properties of derivatives from the active principle. The investigations of Oliver and Schaefer demonstrated the physiological action of this substance and indicated its usefulness in medicine. Aldrich, independently of Takamine (the patentee of the process under which its sales are now to be monopolized) isolated the active principle from the adrenal glands. All of this work, except the work of Aldrich, was done prior to the investigations of Takamine. Aldrich's work was done simultaneously with that of Takamine.

Prior to the granting of the Takamine patent, the knowledge of the adrenal secretion as a therapeutic agent was being developed by the cooperative work of men of science in various parts of the world, and the published results were accepted in scientific literature without question. This cooperative work was immediately rendered impracticable by the granting of the patent and the knowledge

of the prior art is now in a sense the property of the patentee and his agents. The Takamine patent has been sustained by the courts, and from now on, as the monopoly will be complete, future publications regarding the product will be largely discredited because of the commercial control over information concerning the product exercised by the manufacturer.

One of the evils of the commercial system now in vogue is the control over materia medica products and information concerning them obtained by registering as trade-marks names to be afterward used as the names of the products themselves. This attempt is now being made in regard to adrenalin. By use, the word adrenalin has become a noun of the common language and is therefore synonymous with all other names used to describe the product or that may be hereafter used. As stated by a well-known author on patent and trade-mark law:

"No one can claim protection for the exclusive use of a trade-mark or trade-name which would practically give him a monopoly in the sale of any goods other than those produced or made by himself. If he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name or a name merely descriptive of an article of trade, of its qualities, ingredients or characteristics, be employed as a trade-mark, and the exclusive use of it be entitled to protection.

"The policy that the mere use of a name to designate an article would give to those employing it the exclusive right to designate such article by such name, would be giving a copyright of the most odious kind, without reference to the utility of the application or the length of the title and one that would be perpetual. Neither the Trade-Mark Law nor the Copyright Law, nor the Patent Law affords any such right, or, under the pretense of the same, allows any one to throttle trade under the alleged sanction of law."

The real question at issue before which all other questions sink into insignificance, is this, namely—are the manufacturers of monopolized materia medica products to continue to teach therapeutics? If so, let us adopt some kind of a plan to insure the teaching of truth instead of error. That error is the principle thing taught is manifest by the history of the tens of thousands of materia medica failures, which like wrecks strew the beach of the therapeutic ocean. The spectacle should prove a terrible warning to the medical and pharmaceutical professions alike. The public is taking it as a warning, and we have no one to blame but ourselves for the loss of public confidence in drugs, unless it be that drugs are in fact valueless as remedial agents.

As members of the medical and pharmaceutical professions, it is our duty to investigate and scientifically classify the newer materia medica and protect it from pretense and error. It is our duty to give to each materia medica product a name compatible with scientific nomenclature under which all who have the right may manufacture and deal in it. It is our duty to provide tests for its identification, character, quality and strength. It is our duty to adopt proper methods for its preparation and standardization of finished product. It is our duty to ascertain its true therapeutic value in comparison with other products recommended for the same therapeutic purposes. With the exception of therapeutics, it is the especial duty of the American Pharmaceutical Association to do this work. As for therapeutic properties, we can cooperate with the medical profession in determining the true remedial value of each product introduced. And, as for the patenting of

the product, we can cooperate with the Patent Office in deciding whether it is in fact a *new* and *useful* invention. While the process or method of manufacture may be new and useful, the product itself must not be so considered as a therapeutic agent until so determined by the cooperative investigations of many competent observers, sufficiently extended in time and carried on under circumstances that insure the elimination of undue influence from those who are commercially interested in its sale. As it is the duty of the medical and pharmaceutical professions to prevent its being misused, and as the public look to us to exercise our functions in this regard as members of these professions, a solemn obligation rests upon us in this regard.

Can the evils described in this paper be eliminated without changing our patent and trade-mark laws? It is believed by the Council on Pharmacy and Chemistry of the American Medical Association that this is possible. On my way from California I stopped off in Chicago and had several conferences with the secretary of the Council and the editor of the Journal of the American Medical Association. In their opinion the difficulty is one of interpretation and administration of the law rather than one of fault in the law itself. Patent lawyers and the Patent Office are not educated in medicine or in medical ethics. They regard the subject entirely as one of chemical inventions and do not realize the importance of the subject from a humanitarian standpoint.

It is evident that what we need above all things is a strong central board of control or bureau of materia medica to act as a clearing house for material medica information especially in relation to the newer materia medica products—a board that will act in cooperation with the medical and pharmaceutical professions and the U. S. Patent Office.

The banks have their clearing houses, the merchants their boards of trade, the producers of good their produce exchange. Even the turf has its boards of control. It is realized by all persons engaged in business life that such boards are necessary to prevent selfish exploitation of common interests. Shall we as physicians, pharmacists and manufacturers dealing in products which seriously affect the public health for good or for evil allow selfish, commercial interests to throw these vocations into disrepute with the public by not providing some method of control to prevent it?

We have an organization already existing peculiarly fitted to act as a board of control over the introduction of the newer materia medica products. I refer to the committee having charge of the revision of the United States Pharmacopœia, which was chosen by a very representative convention and is itself peculiarly representative in character. Its function is to investigate materia medica products for the purpose of deciding what products are best adapted for the use of the medical profession in treating the sick. The Pharmacopœial convention very properly limited the work of the committee to the selection of free products because under existing circumstances it is impossible to know the true therapeutic value of controlled products. Possibly for that reason the committee has not the power to do any work on controlled products. However, the American Pharmaceutical Association has the power to appoint a committee for the purpose referred to, and to name as members thereof the same individuals now comprising the committee for revising the United States Pharmacopœia.

It is not my intention to advocate that such a committee or board of control should take upon itself the rendering of therapeutic verdicts relative to the newer *materia medica* products. As already stated, therapeutic verdicts are the product of cooperative investigation by many competent observers. Such verdicts cannot be obtained except by years of investigation, carried on under conditions which would exclude all local influences, and insure impartiality. But the committee could do the necessary work required for a scientific classification of the products from a pharmacological point of view, and then send them out to the medical profession for a collective investigation of their therapeutic properties.

As the manufacturers of the new products would primarily be benefited by this investigation, they should be willing to cheerfully meet the expense. I, of course, refer to monopolized products.

The proposed collective investigation would be greatly facilitated by the working bulletin system, devised by me in 1882, to act as an organ of the scientific department of the manufacturing houses. As the Scientific Department plan is also one of my own devising, I have had an opportunity to witness the value of the working bulletin system in obtaining information in regard to the newer *materia medica* products.

Such a board of control might cooperate with the Patent Office and with the courts in their interpretation and enforcement of the patent and trade-mark laws relative to newer *materia medica* inventions. I understand that the president of the United States has the right to appoint a commission for the revision of these laws, and presume therefore, that he also has the right to empower the Patent Office to cooperate with such a committee or board of control. Possibly, it would require an act of Congress to accomplish this object. The question is one for investigation.

After conferring with the secretary of the Council and the editor of the *Journal of the American Medical Association*, as aforesaid, I concluded that it would be wise on my part to bring this matter before you as the report of your Committee on Patents and Trade-Marks. I had already presented to the Section on Pharmacology and Therapeutics a series of resolutions on the subject of Patents and Trade-Marks at the Los Angeles meeting, which was presented by the Section to the House of Delegates and published in the *Journal of the American Medical Association* for July 8, 1911. These resolutions may be of service to the Association in discussing the proposition placed before it in the report of your committee. I have, therefore, appended them to this paper.

WHEREAS, Cooperation between the medical and pharmaceutical profession is essential for the development of *materia medica* science and the advancement of the art of preparing medicines and applying the same to the treatment of the sick; and

WHEREAS, Progress in *materia medica* science and in the pharmacologic and therapeutic arts is being hindered and cooperation between physicians, pharmacists and manufacturers engaged in the chemical and pharmaceutical industries prevented by product patents and the registration of names as trade-marks, which are afterward employed as generic or descriptive names of *materia medica* products; therefore, be it

Resolved, That we, the Section on Pharmacology and Therapeutics of the American Medical Association, representing the medical and pharmaceutical pro-

fessions do hereby request the House of Delegates to instruct the Council on Health and Public Instruction to draft amendments to the patent and trade-mark laws whereby no patents shall be granted on materia medica products, and the patents shall be limited to process and apparatus for manufacture, leaving the products themselves and the currently used names of the same free to science and commerce.

DISCUSSION.

C. B. LOWE: "Dr. Stewart is an authority on these subjects. You probably all know that when phenacetine was first exploited the medical profession was advised as to its valuable qualities, but as soon as the patent expired the exploitation stopped. Just as soon as the patent expired and the profits lapsed manufacturers dropped it as a dog would drop a hot potato. The article was selling wholesale at \$1.00 an oz., in the United States, and at \$1.75 a pound in Great Britain.

"I suppose it is too much to expect that men generally will take the position that Mr. Scheffer did—the inventor of pepsin who never patented the process—and I have always honored him for giving his discovery to the world.

"There is much more in Dr. Stewart's paper. We have been under the impression that we cannot do anything, and he says we can. According to U. S. law a chemist can patent a process for making a thing, can then patent the product made by that process. You can't copyright the name condensed milk, but you can copyright the name "Eagle Brand" of condensed milk.

"The Librarian of Congress has issued a circular No. 19, in which it is definitely stated that names of medicines cannot be copyrighted. They never were copyrighted."

MR. MAIN: "These things are not copyrighted but trade-marked. The patent office is constantly issuing trade-marks for coined names."

MR. FREERICKS: "Mr. Main is correct on the point he makes; names that are coined by the party first using them are his property. It seems to me there can be no question about that."

MR. STEWART: "Coining a name does not make it belong to you. The common law right is simply the right you have to sign your name to a deed."

C. A. MAYO: "The law is very well set forth in the Singer case and Ludlow valve case. Under his patent, no one could make a Ludlow valve and call it such, but must have on the label 'Not made by Ludlow.'"

MR. HOLZHAUER: "If the telephone had not been patented, but the name had been copyrighted and trade-marked, would not that have given the inventor the exclusive right to use the word 'telephone'? I could not make a telephone and call it by that name, but would be required to call it by some other name."

F. E. STEWART: "When you register the name as a trade-mark you do not get a grant of something as you do when you patent a thing. Under a patent you are given seventeen years' exclusive right to the use of the thing. When you register a word as a trade-mark it does not make a trade-mark out of it; it depends upon how you use it, if you use it generically the word enters language as a noun and becomes public property.

"The Singer sewing machine can be made by anybody and it is a Singer machine.

"Take the case of Angostura Bitters, cited by Curley, in Patent and Trade-Mark Law, in which he calls attention to the fact that the name and brand of an article are patentable as long as the secret is not divulged. The name is the name which has been given to it and used as its name by the producer, and that being so, there is no such right to the ownership or trade-mark which is simply your registration of a name so as to give notice that you make a claim.

"These are questions of common sense and we want to get them in such state in our materia medica that we can get them into the Pharmacopœia without turning the book into an advertising bureau."

COMMERCIAL TRAINING OUTLINE OF THE PHARMACEUTICAL SYLLABUS.

E. FULLERTON COOK, PHARM. D.

In the Pharmameutical Syllabus, First Edition, 1910, recognition has been given to the subject of Commercial Training. Suggestive outlines are offered and about 65 hours of work required in the total of 1000 hours for the complete pharmaceutical course. This 1000 hours of instruction is divided, in the Syllabus plan, into three groups; 300 hours are assigned to the general subject of *Materia Medica*, 400 hours to Chemistry and 300 hours to the laboratory and theoretical branches of Pharmacy.

Of the 300 hours devoted to teaching the special subject of Pharmacy, 25 are given over to the Theory of Pharmacy, 65 to Practice, 65 to Manufacturing, 50 to Dispensing, 20 to Latin, 10 to Arithmetic, 10 to Bookkeeping, 50 to Commercial Pharmacy and 5 to Jurisprudence. The last three commercial branches, totaling 65 hours, constitute about 22 per cent of the total 300 hours allotted to this division.

Opinion may differ as to the proportion of time, in a pharmaceutical education, which this subject deserves. The prophesy has been made by a well-known writer on this subject that the time is coming when 50 per cent of all pharmaceutical training will be commercial.

However, for present conditions, the framers of the Syllabus have apportioned as many hours for this work, in comparison with the allotment of the remaining 235 hours for pharmacy, as may be wisely given in a 1000 hour course.

Until a larger number of colleges bring their commercial course up to the suggested standard of 65 hours, or until the total hours of training are increased, there should be no enlargement of the proportional time now assigned to commercial training.

The present outline of the Syllabus is excellent in part. The outlines under Commercial Pharmacy, First Year, page 123, and continued for the Second Year, page 125, are helpful, although in many instances quite fragmentary and incomplete. There is some confusion about the teaching of Bookkeeping. Under "Pharmaceutical Arithmetic," page 106, 15 hours of didactic and 5 hours of laboratory instruction are assigned to a course of arithmetic which alone would demand the full time, if satisfactorily treated, while to it is added Bookkeeping—Single Entry—Double Entry—and Commercial Forms. The work required here is out of proportion to the hours.

Later, on page 125, under Commercial Pharmacy, Bookkeeping is re-outlined and most elementary training suggested, such as Theory of Bookkeeping and Necessity for Proper Books of Account, while practical bookkeeping is again called for. Apparently here the bookkeeping work is duplicated.

But the outline most impossible of accomplishment in the allotted five hours, is that on pages 128, 129, 130, 131, 132 and 133 on Pharmaceutical Jurisprudence. However meritorious this detailed course, covering six pages in bare outline, one must despair of teaching it properly in the time assigned.

The outline here again shows a lack of co-ordination in preparing the course, for subjects are duplicated which appear on pages 125 or 126, such as Insurance, Banking, Negotiable Instruments, Partnership and Corporations.

These brief criticisms will serve to call attention to some of the needed changes in the present Syllabus, in the Commercial outlines, but the suggestion of greatest importance here offered is the *method* of teaching. It is believed that subjects should not be taught disconnectedly; for them to properly interest and impress the student, they should be so arranged and grouped that their necessity and importance will be realized. For instance, a completed life history of a business, in miniature, should be experienced by each student; he should be led step by step through the conditions, as nearly as they can be simulated, in which he will need the knowledge; and taught the subject at the time when it can be applied. The facts will then be interesting and will lose their theoretical aspect. The following may illustrate more clearly what is meant:

The course can be started by assuming that the student is about to enter the drug business. This introduces the problems involved in establishing a successful store, i. e., capital, training, location, partnership, buying an established business, starting a new store, professionalism vs. commercialism, etc., and these questions may be discussed at once. Being now ready to assume the responsibility of proprietorship a number of other subjects naturally arise, as, banking, negotiable papers, relations with a landlord, and the lease, store arrangement, ordering supplies, buying to advantage, advertising, store management, salesmanship, letter-writing, insurance (fire, life and indemnity), licenses, establishing personal credit, allowing credit to customers, discounting bills, expenses and their relation to profit, etc., etc.

All these subjects are closely linked with the bookkeeping which will be required, and if the items of business are properly selected, the necessary business facts can be introduced as the course proceeds and explained and illustrated at the proper time.

In so far as legal training is concerned a few principles in the field of general law is about all that a student of pharmacy can safely use. It will be wiser to trust a reliable lawyer when a real need arises. However, in the special branch of laws relating to pharmacy and pure drug legislation, he should be thoroughly grounded, so that no doubt of duty and obligation can exist.

This paper has not been offered in any unfriendly spirit; the value of the Syllabus in bringing about more harmony in Pharmaceutical education is appreciated. The suggestions are presented with the hope that they may aid, by instructive criticism, in the development of a more perfect outline in the next edition.

DISCUSSION.

Prof. C. B. Lowe said he believed criticisms such as those presented in the paper were helpful, because the Syllabus, while a good thing, is a new departure and is not a well balanced book; too much time is allotted to some subjects and too little to others, while the matter in some of the departments has not been wisely arranged. Any one who has taught physiology realizes that the nervous system should be reserved until the end of the course and not at the beginning. In his opinion the one who mapped out that course had never taught physiology to pharmaceutical students, though he may have taught medical students. We had not yet arrived at the point in pharmaceutical education where pharmacy students could take up dis-

secting, and there are many things concerning physiology which cannot be understood without practical work.

Mr. Harry B. Mason said that the framers of the Syllabus did not regard it as a work of perfection but welcomed the most severe criticism. The work had been offered as merely suggestive of what might be brought about in the future. The Syllabus movement, however, when completed will be one of the best steps ever taken in behalf of pharmacy. It means nothing less than the unification of the work of boards and colleges of pharmacy throughout the country. It is a difficult work to get the colleges and fifty-three boards of pharmacy to agree on a definite schedule. The fundamental idea is an excellent one and the details will work themselves out in time.

He had been requested to furnish suggestions to the chairman of his sub-committee, and had directed his criticism exclusively to the section on Commercial Training. He had made the point that nothing had been said about profit and earnings, and no provision made for teaching the student to conduct his business accounting so that he would know how much he made; nothing was said about percentages of gross profit and expense.

Dr. E. F. Cook said that one of the criticisms which must be made of the Syllabus Committee is that in asking the boards and colleges to adopt the Syllabus, it had not been made clear that the work was regarded as being in a constructive state. All would agree that when the Syllabus was perfected we should ask the boards and colleges to adopt it; in its present stage they cannot adopt it in full.

Dr. H. L. Taylor replied that the criticisms made were exactly what were wanted, especially constructive criticisms such as those made by Dr. Cook and Prof. Lowe. He thought there had been general misapprehension of the fact as to what approval by a board of pharmacy meant. He wished to emphasize the fact that the Syllabus was recognized by the committee as being in a crude or formative state. It had been the work of many men and many minds, and further time would be needed to harmonize and correlate their views.

DRUGGISTS CO-OPERATIVE CIGAR MANUFACTURING.

ERNEST BERGER.

Druggist cooperation is not a new proposition,—probably the beginning of it was when the American Pharmaceutical Association was organized,—and from professional cooperation has grown commercial cooperation and the numerous commercial cooperative companies organized by druggists, which, by the way, have been more successful than any other line of business. Fire insurance, wholesale drugs, pharmaceutical manufacturing and others all are financial successes. Why not cigar manufacturing?

The retail druggist can make his cigar case a paying proposition by cooperating in the manufacture of the goods handled.

As a rule, the cigar case in a drug store is looked upon by the smoking public as a side line, with the cigars of an inferior quality, which fact is sometimes accentuated by flashy premiums or trade inducers which are strewn over the showcase, or hung about the walls, or from the ceiling. The average druggist in a small town will not pay over \$30 for a five-cent cigar, but will pay \$35 per 1000 for a fancy cigar lighter, electrolier or humidior, or some other premium. The same argument applies to goods which are to sell at ten cents.

A discerning smoker knows quality, and he also knows that he is not getting his money's worth in tobacco when he sees all the jim-cracks on display which were sent along as part of the cigar shipment. The discerning smoker generally patronizes a cigar store. He believes that the exclusive cigar store handles the best goods—that the owner knows tobacco and relies upon his judgment.

The drug store must recognize competition. It must meet the exclusive cigar store with as good, if not better, cigars.

By cooperation, by owning their own cigar factory, druggists can sell for five cents a cigar which could not be eualed elsewhere for ten cents.

They would make as much, if not more profit, on each cigar, and double their business in a few months.

They would, by cooperation, eliminate the jobber; they would save express charges.

I live in Tampa, Fla., a city of 54,000 people. We make some cigars in that town. Fifteen thousand people are employed in the 260 or 300 cigar factories. Some of these factories are small, and some employ 1500 cigar rollers. We have a capacity for making 1,500,000 clear Havana cigars each day. We will make 400,000,000 this year. The average price is \$85 per 1000. That is nearly \$35,000,-000 worth of cigars. So I know something about the cigar business.

Our cigars are all hand made. No machinery is used in their construction, except that one or two factories are using automatic banders. The cigar rollers receive from \$18 per 1000 to 20 cents each for making cigars. It is interesting to watch the process of making cigars, and the care exercised to make them "free smokers." It is a revelation to follow the process from start to finish—from the time the buyer leaves for Havana to inspect and contract for his leaf, the blending of the various grades of filler (which are trade secrets); the care taken to keep the filler and the wrappers at proper moisture; the selecting, packing, and even the sealing of the cases holding 5000 cigars. Would you believe it that there are as many as 100 shades of cigars? Watch the selector. With a North light on his long and wide table he begins to select the various colors. He works fast. Soon he has a score of piles, all of different shades, then fifty and up to one hundred. The packer then takes fifty to one hundred, as the case may be, all of one color, and he inspects for defects in wrapper or construction, and finally fills his box, after each layer of cigars has been turned and turned until the rows look inviting—good all the way through.

And they go out into the world and find ready buyers—factories in Tampa sometimes are a million cigars behind their orders.

And more factories come to Tampa because they cannot compete elsewhere with Tampa-made cigars—the public is demanding them.

Close proximity to Cuba, where the raw material is obtained, cheap water transportation, and identical climatic conditions enable the Tampa manufacturer to make the same quality as the Havana manufacturer at a considerable saving.

If such firm as Regensburg & Son, New York; Boltz, Clymer & Co., Philadelphia, and a score of other firms of national reputation were obliged to come to Tampa to make cigars, why should not the retail druggists of America profit by their examples?

There is money in the cigar making business. One firm which began business in Tampa in 1898 in a small way now divide \$150,000 profits each year. Another firm began business with a net capital of \$5000, profits today \$250,000. Each \$1000 originally invested is held today at \$50,000. Another company began with \$500 capital. They paid 10 per cent. dividends from the start. Profits now

\$20,000 a year. A young man began business here in 1904 with \$500. His business today is worth \$100,000. I could cite a hundred successes equally as forceful.

Now, if the retail druggists owned a factory they would profit in the manufacturing end and profit in the retailing end.

The manufacturers cited above began business under greater disadvantages than would the retail druggists. The independent factories fought for their business. With the cooperative plan the retail or selling end is already established, and needs only to be enlarged.

The moment a druggists' cigar factory can make a thousand cigars they are sold.

The independent factory has no such arrangement.

The druggists' factory could have a retail selling force pushing its brand for both retail profits and manufacturers' profits.

The independent factory has no such retail force.

Think of ten thousand druggists working day and night to support their factory, and by this endeavor doubling, trebling their cigar business over what it is today—bringing people into the stores to buy cigars and incidentally to buy toilet articles, drugs, and to have prescriptions filled, instead of, as it is today, having these people happen in to get medicines and incidentally to buy a cigar.

Under "American office and expert Cuban factory" management and proper climatic conditions, the co-operative druggists cigar factory is the best proposition before the druggists today.

Take any cigar you can think of which has a national reputation. A high-class salesman solicits the trade. Then the cigar goes from the factory to the jobber, and maybe to the second jobber, and thence to the retailer. Every time the cigar moves from one concern's hands to another the express charges are piled up, every middleman must have his profit.

In the meanwhile the cigars deteriorate. The wrapper is no longer smooth and velvety to the touch, but rough and brittle; it breaks if crushed; the boquet has disseminated; it is not the same cigar that left the factory, as it has been superheated in transit, baked in hot warehouses, and passed through many various degrees of temperature. Maybe you will find the tobacco worm has begun its ravages.

A cigar is a sensitive proposition.

But, if the druggists have a factory of their own, the cigar would go direct from the factory to the retailer. It would come freshly packed, be a few days in transit, and be placed in the humidor of the drug store. You could take the cigar out of the box and nearly wrap it about your finger. It would smoke—not burn up like a torch. It would leave a pleasant taste in the mouth—not blister your tongue.

That's the difference.

And that difference is sufficient to make a buyer of a cigar like that a customer all the time, not a chance customer—or one who buys a drug store cigar because he happens to be in the store to get paregoric, or because he happens to be out of his favorite brand at home, which he buys up town where they sell good cigars.

The cigar bill of an average smoker of good cigars, and that is the kind of

trade you should cater to, is fifty cents a day. If you should only induce 100 regular customers to your store, that would be a cigar trade of \$50 daily.

But —

You know full well that where the good trade goes the cheaper trade comes without bidding. You could do \$100 a day.

That is true in every line of business.

DISCUSSION.

MR. FRANK H. FREERICKS: "I really do feel that an effort such as has been presented to us by Mr. Berger should not be allowed to go unnoticed. I recall that six years ago, when I presented to the Commercial Section of the A. Ph. A. an outline for a Cooperative Enterprise, and when I found here just one man to give me a little encouragement; that man is here now; he sits at the table there; Mr. Mayo, and I want to express my appreciation for the encouragement he gave me then, and which, I believe, led others on to join in the effort, which I was trying to bring about for the benefit of the drug trade of the country. I am sure that there is in the mind of none of you a doubt, but that such a cooperative effort as here presented can be brought to be for the best interest of the drug trade of this country; something that will be distinctly their own. I believe in all Cooperative enterprises, and the fundamental basis upon which they should be built, is quality. Quality with which no one can compete. In this case, it is a field which, because of the monopolistic tendencies, of the branches of the Tobacco Trade, can be made to benefit the retail drug trade in so many ways, and particularly by making a distinction between the class of goods that they would sell, and the class of goods in the ordinary Cigar Store, and in the United Cigar Stores Stands, which are being distributed throughout the country, and which will not be stopped by any decision of the Supreme Court. Therefore, there is here an opportunity for the retail druggists to secure something unto themselves which will be their own, and which as stated, should be built up on quality.

"I have not the least doubt at all but that this enterprise can be built, and made successful from the start. I only want to suggest to Mr. Berger, with reference to it, and I believe really that because of my experience in that connection, I have a little right to give the expression that I am about to make: If the enterprise is to be carried on, it should be by men, directing it, who will really direct and control the enterprise, so that it will never be in the hands of one man or one set of men, but so that it will truly continue to be a Cooperative enterprise of the retail drug trade of this country. There isn't any trouble at all, to secure that feature, and having secured that feature, I feel that there is not a man in this country now engaged in the drug trade, who should not want to invest a little in such a laudable enterprise."

KNOWING ONE'S STOCK.

Not only the manager, but all employed in a store should know the exact location of the stock. This should be learned so thoroughly that a manager or any one connected with a store should be able to place a hand on any line of goods asked for without the slightest hesitation. Few things create a more unfavorable impression in the mind of the average customer than to have a man behind the counter start out searching expeditions among the shelves and drawers for some particular article that is asked for though it may not be an every day staple. It means much to the reputation of the store if a customer may walk in and call for something a little out of the ordinary; then walk out with the article asked for without any delay. The store that is so stocked that every clerk can immediately place his hand on anything in the stock has a marked advantage over the store where the clerks have to stop and think before they can deliver the article asked for.—*Western Druggist*.

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

INFLUENCE OF THE UNITED STATES PATENT SYSTEM ON THE PRACTICE OF PHARMACY.

M. I. WILBERT.

The recent granting of patent No. 1,000,000 by the United States government has attracted considerable attention and has been the more or less direct cause for an unusual amount of discussion on the benefits accruing from our patent system and the probable influence of patents on general progress and on the welfare of the individual members of the community.

That much of what we are pleased to term progress is directly due to innovations introduced under letters patent, is generally admitted, as is the frequently made assertion that the production of patented articles has added materially to the wealth of the nation, has made necessities cheaper and brought luxuries within the reach of even the poorer members of the community.

In the discussion of the general advantages or disadvantages of our present system of awarding patents, the influence exerted along special lines is frequently overlooked, and we need not be surprised to learn that the practice of pharmacy in these United States has been profoundly influenced by the granting of patents and that on at least several occasions the whole trend of pharmacy, first as a profession, then as a business, has been changed by patented articles or products that were used or sold in the drug stores of the country.

It may not be generally known that the first patent awarded in the United States was for an improvement in the process of making a widely used chemical substance, potassium carbonate. This patent was awarded on July 31, 1790, to Samuel Hopkins, and the historian says that the President (George Washington) and his cabinet members congratulated both the inventor and the officials at the Patent Office on the prospect of this patent adding materially to the wealth and welfare of the nation.

The Patent Board of that period consisted of the President and his cabinet officers: Thomas Jefferson, Secretary of State; Henry Knox, Secretary of War, and Edmund Randolph, Attorney General. Jefferson being chairman of the board, was really the first Commissioner of Patents.

Among others of the earlier patents granted in this country for original combinations of matter was the one issued on April 30, 1796, to Samuel Lee, Jr., of Connecticut, for the "composition of bilious pills." This patent was followed by a number of others for more or less similar preparations, and the first decade

of the nineteenth century witnessed quite an agitation over the abuses that had become evidenced in connection with "patent medicines" that were really patented.

Among the many patents on medicines of this early period was one awarded to William Story, of Lebanon, Pennsylvania, for a "medicine to cure hydrophobia," and one to Elisha Perkins, of Connecticut, the inventor of the world renowned "metallic tractors," for a "powerful remedy" for dysentery and ulcerated throat.

These early "patented" medicines were the forerunners of that host of nostrums that has served to convert the American drugstore into a repository of cure-alls and thus divert the energies of the followers of our craft from the more promising possibilities of a professional pursuit.

The nature and even the number of the earlier patents appears to be unknown at the present time, as practically all of the records of the patent office were destroyed by fire in 1836 and the present series of patents dates from that year.

Number 1 of this present series was granted to John Ruggles, July 13, 1836, for an improvement on the locomotive engine, and No. 1,000,000 was granted to Francis H. Holton, on August 8, 1911, for an improvement on the automobile, being in effect a new form of automobile tire. While it is quite probable that neither of these two patents are of direct interest to pharmacists, there are, nevertheless, a great many others whose influence on the progress of the business side of pharmacy can readily be outlined and appreciated.

It is quite probable that apart from the early patents on medicines and the subsequent introduction of trade-marks in connection with the same line of articles, no patents have influenced the development of the drug business to the same extent as did the patents on apparatus for aerated water, the so-called "soda water" of the shops, which served to add to the line of nostrums a line of beverages that were destined to become popular, and in many sections at least, have all but crowded out even a semblance of pharmacy from the modern drug store.

It has frequently been asserted that all progress, or retrogression, is in cycles, and this appears to be particularly true of the drug trade and its relation to the patent system of the United States.

As the drug business of a century ago was profoundly influenced and its development and destinies changed by the granting of patents on medicinal preparations, so the still existing remnant of the trade appears to be destined to be materially changed by the renaissance in the patenting of medicines in the eighth decade of the nineteenth century.

As yet it is too early to predict what the ultimate effect of patenting medicines is destined to be, but up to the present time the practice has certainly not improved pharmacy nor can it be said to have materially benefitted the health or the purse of the average citizen of the United States. Just at the present time, however, we appear to be entering upon an era of conservative inquiry regarding the desirability of granting monopolies in connection with substances that may and do affect the health of the people, and it may be that out of the impending investigation there will develop a new and a better pharmacy, one that will be a factor for progress in the sciences of medicine, and one that will be of service in the pro-

tection of the health of the people and assist in the prolongation of human life and the increase of human happiness.

DISCUSSION.

Dr. H. M. Whelpley inquired as to what proportion of the patents granted were for patent medicines?

Mr. M. I. Wilbert replied that, owing to the destruction by fire of the Patent Office in 1836, it would be difficult if not impossible to ascertain how many of the earlier patents were for medicinal preparations.

Story's Cure for Hydrophobia was patented in 1796, and was one of the earlier patents that appeared in general literature. Comparatively few are so mentioned. One of these is the patent on Lee's Bilious Pills recorded in the proceedings of the Medical Society of Connecticut.

Dr. Lee was a regular practicing physician in good standing, and under the code of ethics, his contemporaries objected to his holding a patent and ejected him from the society. In order to regain his standing, Dr. Lee signed an agreement that the members of the society and others of the medical profession in good standing could use his formula for Bilious Pills without interference.

Mr. Otto Raubenheimer stated that he had in his store,—which dated back to 1870—a jar which was labeled "Lee's Bilious Pills." These had evidently been used up to as late as 1870, since the jar was carefully labeled.

THERAPEUTIC "FREEDOM."

Senator Works, of California, who is a Christian scientist, and whose wife is a Christian science "practitioner," is traveling around the country making speeches against "allopathic despotism." He is very much concerned because the medical service of the army, navy and marine hospital service is in the hands of regulars, and because President Taft has recently made it unlawful for any physician to practice medicine in the Panama Canal zone without passing an examination and securing a medical license.

I suppose that the good senator would very much prefer that a Christian science practitioner should be billeted to every regiment, and one assigned to every ship. By energetic treatment before battle all discomforting wounds could undoubtedly be prevented, all casualties would thus be averted, and the dove-eyed eagle of peace would inevitably roost upon our banners. Also, all diseases could be given comfortable absent treatment over the after-dinner tea, including the great scourage of the camps of Mars—*lues venerea*.

And what a shame it is that the government should spend all this good money in draining swamps, installing expensive sewage systems, killing off flies, mosquitoes and other troublesome insects (whose tender hearts might be touched by the silent message of Truth), screening dwelling houses, and rigidly enforcing observance of sanitary laws.

Just think how many Christian science temples this money would build!—
Clinical Medicine.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY.

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter.

(Sixth Installment.)

Nitrites: New Method of Determination.—E. Rupp and F. Lehmann propose a new method for the determination of nitrites, which is based on the fact that nitrous acid is oxidized quantitatively to nitric acid by bromine according to the equation: $\text{HNO}_2 + 2\text{Br} + \text{H}_2\text{O} = \text{HNO}_3 + 2\text{HBr}$. The reagents required are a solution of potassium bromate containing 1.6702 gms. per litre, and potassium bromide solution containing 6 gms. per litre. When equal volumes of those solutions are added to the nitrite solution and the whole acidified, the calculated amount of bromine is liberated, and the excess over that required to oxidize the nitrite may be determined by adding potassium iodide and titrating the liberated iodine with standard sodium thiosulphate solution. The result is calculated from the equivalents. Fifty cc. of the above bromate solution are equivalent to 30 cc. of N/10 thiosulphate solution. For the determination of the purity of sodium nitrite, for example, 2.5 gm. of the sample are dissolved in 500 cc. of water, and 10 cc. of this solution are placed in a 250 cc. stoppered bottle. Fifty cc. each of the bromate and bromide solutions are run in, 10 cc. of dilute sulphuric acid are added, and the bottle quickly closed, well shaken, and set aside in the dark. After standing for half an hour, 0.5 gm. of potassium iodide is added, the mixture is well shaken, allowed to stand for two minutes, and then titrated with N/10 sodium thiosulphate solution, using starch as indicator. The number of cc. of thiosulphate solution required is deducted from 30, and the difference multiplied by .00345 gives the amount of sodium nitrite in 0.05 gm. of the sample.—*Archv. d. Pharm.*, 249 (1911), No. 3, 214.

Carbon Dioxide: Solubility in Beer.—It has been stated that carbon dioxide is more soluble in beer than in the corresponding

water-alcohol mixture, the increased solubility being ascribed to the presence of the colloidal substances in beer. It is now known that colloidal solutions do not dissolve gases so well as water, and this is confirmed in the case under consideration by the experiments of A. Findlay and B. Shaw, who find that carbon dioxide is less soluble in beer than in the corresponding dilute alcohol. The erroneous results of previous experimenters are ascribed by the authors to super-saturation.—*Pharm. Journ. and Pharmacist*, June 24, 1911, 844.

Tellurium: Aledged Complexity.—The anomalous position of tellurium in the periodic table has made this element the subject of more researches than any other during the last twenty years. The high values obtained for the atomic weight have led to the supposition that tellurium contains a second element of high atomic weight, but extensive attempts to separate it into two different elements have been unsuccessful. Some time ago, however, Browning and Flint claimed that they had separated tellurium by fractional decomposition of the tetrachloride with water. The tellurium dioxide obtained in this way was converted into the basic nitrate and the atomic weight determined, after ten such fractionations, was given by Flint as 124.3. A. G. Vernon Harcourt and H. B. Baker have now repeated this work, but have been unable to effect and separation. They suggest that the low figure obtained by Flint is due to the presence of some tellurium trioxide in the dioxide.—*Pharm. Journ. and Pharmacist*, June 24, 1911, 844.

Solution of Sodium Ethylate, B. P.: Cause and Prevention of Discoloration.—According to the official description, solution of sodium ethylate is a colorless liquid becoming brown by keeping, and, being only employed occasionally, this discoloration usually happens when kept in stock. H. Finnemore attributes this change of color to the action of the alkali on the acetaldehyd, which is always present in small quantity in commercial absolute alcohol, and after trying various methods to get

rid of this impurity, was most successful by boiling the alcohol for one hour with sodium phenylhydrazone, as employed by Hewitt, and then distilling. A distillate free from acet-aldehyde is thus secured, but when kept for a long time some of the latter is gradually re-formed and the solution of sodium ethylate becomes discolored. In the course of some experiments on another subject the author observed the great depth of color when sodium ethylate solution was used, whereas, when

Solution of Sodium Methylate was employed no discoloration resulted. The use of methyl alcohol is therefore suggested to prepare an equivalent caustic solution, which, in the experience of the author, using Kahlbaum's No. 1 methyl alcohol, showed no trace of discoloration after two years.—Trans. Brit. Pharm. Conf. (Year Book of Pharmacy), 1911, 425.

Methylenedisalicylic Acid: Preparation and Properties.—According to E. Clemmensen and A. H. C. Heitman, methylenedisalicylic acid ($C_{15}H_{12}O_6$) may be prepared by mixing 32 gms. of salicylic acid, 10 gms. of formaldehyde (40 per cent.), and 180 gms. of 50 per cent. sulphuric acid, and gently boiling the mixture for ten hours under a reflux condenser. The product is powdered, washed with cold water, and finally several times with boiling water to remove any uncondensed salicylic acid, collected, and dried. The yield, by this method, is theoretical. The acid is a white powder of strong bitter taste, and melting at 238° with decomposition. It does not appear to be obtainable in good crystalline form. It is readily soluble in ether, acetone, alcohol, ethyl acetate, glacial acetic acid, slightly in hot water, and insoluble in benzene, chloroform, carbon disulphide, and petroleum ether. From solutions in alcohol, acetone, and glacial acetic acid, it is imperfectly precipitated on addition of water. Its aqueous solutions are colored blue by ferric chloride. Heated above the melting point or with caustic alkalis, it is decomposed into hydroxyphenylmethylenedisalicylic acid, methylenediphenol, and carbon dioxide. Alkali and alkali earth carbonates are readily decomposed by it, forming soluble salts, none of which has been obtained in distinct crystalline form. They are precipitated from concentrated solutions on addition of alcohol or sodium chloride. The salts of the heavy metals, made by double decomposition of the soluble salts, are obtained as insoluble colored precipitates.

Methylenedisalicylic acid, when precipitated from a soluble salt with a mineral acid, separates in gelatinous form, particularly if the solution is warm.—Pharm. Journ. and Pharmacist, June 10, 1911, 773; from Journ. Amer. Chem. Soc., May 15, 1911, 733.

Strychnine Hypophosphite: Properties.—The ordinary books of reference do not describe the hypophosphite of strychnine and D. B. Dott now supplies the following description: It crystallizes with the composition indicated by $B.H_3PO_2 \cdot 3H_2O$, all the water of crystallization being lost at 100° C. It is one of the most soluble of the strychnine salts, requiring 3.3 parts of water at ordinary temperature for solution.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1910, 422.

Corycavidine: A New Corydalis Alkaloid.—J. Gadamer has isolated from the so-called "amorphous" alkaloids, derived from *Corydalis Cava*, a new crystalline base, which he has named corycavidine, and to which he assigns the formula $C_{22}H_{25}O_5N$. It crystallizes from a mixture of alcohol and chloroform in colorless, transparent crystals containing about one molecule of chloroform crystallization. Exposed to the air these effloresce and then melt at 212° C. to 213° C., being converted thereby (at 209° C.) into an optically inactive base, melting-point 193° C. to 195° C., probably iso-corycavidine. Corycavidine gives a reddish-yellow solution with strong sulphuric acid, which turns greenish-grey on heating. It gives an olive-green with Froehde's reagent; a dirty reddish-brown with Mandelin's reagent. It forms a crystalline nitrate, and hydrochloride; the anrichloride $C_{22}H_{25}O_5N.HCl$, is a red powder, which sinters at 80° C., and decomposes at 170° .—Arch. d. Pharm., 249, 1911, No. 30.

Morphine: Quantitative Determination of Small Quantities.—Objections having been raised to the method of Rübsamen for the quantitative estimation of small quantities of morphine, the method has been investigated by R. Gottlieb and O. Steppahn. According to this method the morphine is extracted from solutions of its salts by making just alkaline to phenolphthalein and shaking repeatedly with large volumes of chloroform, afterwards distilling off the chloroform and determining the morphine in the residue by Gordin's method. The authors find that good results can be obtained by proceeding as follows: The solution must be only just al-

kaline to phenolphthalein, and since the alkalinity is diminished by the extraction, more N/10 alkali is to be dropped in as required; instead of shaking with the chloroform, it is better to mix the two liquids in a beaker with a stirrer for ten minutes at a time, adding alkali as required; the chloroform should have been well stirred with pure water first, and about 600 cc. should be used each time for extracting 200 cc. of the aqueous liquid. After the ten minutes stirring, the whole is transferred to a separator, and the chloroform run off, and the operation repeated three or four times. The united chloroform solution is distilled, the last portion evaporated in a dish, and the morphine dried; a known excess of N/10 sulphuric acid is then added, and enough absolute alcohol to take all into solution, and the determination concluded by Gordin's method. A number of control determinations showed that about 90 per cent. of the morphine is obtained.—Apoth. Ztg., XXV (1910), No. 105, 1054; from Arch. f. Exper. Pathol. u. Pharmacol., 64 (1910), 54.

Erythrina Zeyheri: *Constituents of the Seeds*.—E. Langham has subjected the seeds of *Erythrina Zeyheri*, a leguminous South African plant, to chemical examination. This plant has an average height of 45 cm. The stem, leaves and leaf-stems are covered with prickles, which emerge from the ribs on the stems and the veins on the leaves, and on the stems towards the root, thus affording some protection from being eaten by ruminants. The seeds are covered with scarlet testa, and contain a quantity of a bland, nutty oil, a volatile oil, and an alkaloid. The seeds of *Abrus precatorius*, also of the same order of plants, possess scarlet testa, but with a black spot on one side, and are used for making rosaries and necklaces. The seeds of *Erythrina Zeyheri* are also employed by Kafirs in South Africa for making necklaces. The color of the seed integuments does not yield itself to chloroform. The ripe seed-pods vary in length from 4 to 12 in. (10 to 30 cm.); the average weight of each seed is 20 grains. They yield to ethereal extraction, 28% of fixed oil, and 4% of volatile oil (*Erythrol*), the latter being powerfully irritant and having the pungent odor of horseradish, while the fixed oil is simply an aperient, free from pungency. By alcoholic extraction, an alkaloid (*Erythrine*) is obtained in a yield of .15%. This is insoluble in ether or benzol, and gives a purple precipitate with auric

chloride, while when boiled with ammonia or caustic potash its solutions assume a sap-green color. It also gives the characteristic reaction with Thresh's alkaloidal reagent. Touched with nitric acid, erythrine gives a bright color, changing to red; with sulphuric acid it gives a dull red color. When boiled with dilute sulphuric acid it splits off *Erythringen*, and the resulting solution when rendered strongly alkaline with caustic potash and warmed with cupric sulphate, throws down a crimson-scarlet precipitate.—Chem. and Drug., April 28, 1911, 134.

Siam Benzoin: *Botanical Source and Collection*.—Haidman Rordorf, having received from Dr. Domeller Nieuwenhuis, who is the Dutch Minister in Siam, authentic leaves, twigs, bark and resin derived from trees growing in the northwestern Province of Kiang Mai, in the district near the source of the Meping river, contributes some interesting information concerning the botanical source and collection of Siam Benzoin. The leaves are described as 11 ins. to 12 ins. long and 4 ins. to 5 ins. broad, leathery, longish-ovate, and acuminate. The margin of the leaf is slightly undulate and entire. The upper surface is of a dark olive-like green color and glabrous. The midrib and lateral veins are of a clear brown color and very prominent. The smaller veins are somewhat prominent also. The under surface is of a paler olive-green color filled with abundant appressed stellate hairs. The whole vegetation is reddish and clearly outlined and covered with stellate hairs. There are five or six lateral veins on each side, nearly at right angles to the midrib, at first curved, and then running along the leaf margin, in which they terminate. The leaf stalks are 1 in. long and colored like the veins, and also covered with stellate hairs. In the axils of the leaves there are small buds and leaflets 1 in. long. Mr. Rordorf lays special stress on the fact that two kinds of buds occur in the leaf axils, that the stellate hairs on the leaves are not the same as those of *Styrax Benzoin*, and that the leaves are entire, whilst those of *S. Benzoin* are serrate-toothed. The author also described the method of collecting the drug by the inhabitants of a small settlement—small long-haired people, who apparently emigrated from China in very early times. They speak an old, forgotten language, and wear different clothes to the natives of Southern Siam. Their method of collecting the benzoin and

preparing it for the market is as follows: On trunks of 20 cms. in diameter pieces of bark of rectangular shape from half to four hands-breath in size are loosened, and the resin runs out on the inner side of the bark, solidifying there by the heat of the sun. This forms the finest quality. The smaller fragments are formed into lumps by hand. The resin is spread out on a strong mat in a heap, and ginger roots, first hollowed and filled with the marrow of the bones of the pig, are mixed with it, and the mats are tied up at the ends into a bundle. The contents are examined from time to time to see if the fat has been taken up, and if not fresh fat is used. It is said that rancid pork fat will not, like fresh fat, pass through the ginger root. This process takes about one year, its object being to give a fine aroma. When the fat has disappeared from the ginger the drug is ready for export without risk of losing its fine odor through the hot and long journey to Bangkok.—Schweiz. Wschr. f. Chem. u. Pharm., XLVIII (1910), No. 36.

Nigerian Gums: Source and Characters.—According to Dr. J. M. Dalziel, the term "Nigerian Gum" is given to any white or nearly colorless gum collected in the Bornu and Yola provinces, gum culture being unknown in Nigeria, and the desultory collection being done at random. The hashab tree of the Kordofan district, *Acacia Senegal*, is abundant in the Bornu province, where gum is a predominating forest product. In the Yola province a large acacia, probably *A. Sieberiana*, is pointed out as the source of falli. Murrua (the term given to yellowish or reddish varieties of gum) is with little doubt the product in Yola of *A. Seyal*, though some may be derived from *A. xanthophylla*. Both falli and murrua are in the form of large tears, lumps, or broken fragments, or, occasionally, pencils. Falli becomes opaque owing to the formation of fine fissures, but murrua usually retains its glassy surface. Most of the gum gathered in the Yola province consists of mumuye, which is in lumps or masses of a dark or smoky appearance, and is derived from one or more species of *Combretum*, usually *C. leonense*. The resident of the Bornu province states that four trees in that country yield gum of marketable value, viz., Kolkol (*Acacia Senegal*, Willd.), karunga (*Acacia Seyal*, DC.), Katalabu (*Acacia Sieberiana*, DC., probably), and gulawai. The identifications were made

at Kew. The investigations established the fact that the principal sources of gum in Bornu and Yola are the same species as the important Sudan and Senegal gums. Also that it is not improbable that by educating native collectors much of the variability in quality of Nigerian gum could be avoided. The main results of the investigations are summarized below:

Bornu Province,		
Source of Gum	Moisture Per cent.	Ash Per cent.
<i>Acacia Senegal</i> ...	10.2-11.4	2.8-3.1
<i>Acacia Seyal</i>	11.1-11.4	2.5-2.6
Yola Province,		
<i>Acacia Suma</i>	13.3-13.5	2.0-2.3
<i>Acacia Sieberiana</i>	13	2.6
Sokoto Province,		
<i>Combretum sp.</i> ...	12.6	2.0
	Matter Insoluble in Water Per cent.	Strength as Measured by Viscosity
Source of Gum		
Bornu Province,		
<i>Acacia Senegal</i> ...	1.2-1.9	5.3-6.6 ¹
<i>Acacia Seyal</i>	0.8-1.4	5.8-6.6 ²
Yola Province,		
<i>Acacia Suma</i>	4.1-4.5	14.1-16.7 ³
<i>Acacia Sieberiana</i> .	0.7	13.3 ⁴
Sokoto Province,		
<i>Combretum sp.</i> ...	1.2	7.8 ⁵

Color of Mucilage—¹Almost colorless to pale brown. ²Brown. ³Colorless to brown. ⁴Pale color. ⁵Dark brown.

Chem. and Drug., March 11, 1911, 90; from Bull. Imper. Inst., VIII, 1910, No. 4.

Bartsia Odontites: Mannitol an Abundant Constituent.—In the course of experiments on the herb of *Bartsia Odontites*, in England a very common wayside plant of the N. C. *Scrophulariaceae*, undertaken to determine a possible toxic constituent, similar in activity to digitalis, H. Finnmere and G. E. Town obtained by continuous extraction with hot alcohol, a concentrated liquid from which a fairly large amount of crystalline matter separated on standing. This, on examination, proved to be mannitol, which was identified both by composition and melting point, and by that of the acetyl derivative. No active constituent was revealed by this investigation.—Trans. Brit. Pharm. Conf. (Year Book of Pharmacy), 1911, 444.

Cimicifuga: Chemical Examination.—H. Finnmere has made a systematic chemical examination of the rhizome of *Cimicifuga racemosa*, resulting in the isolation and identification of the following constituents: *Isoferulic Acid*, to which he assigns the constitu-

tional formula $C_8H_6O(COOH)(OCH_3)$, and from which he prepared the acetyl derivative, having the composition $C_8H_6(OAc)(COOH)$. The melting point (146°) and other properties of this derivative, agree with those of *Hydroisoferulic Acid*. A small quantity of *Salicylic Acid*. A trace of substance having the melting point 152° *Palmitic Acid*. A *Phytosterol*. Three crystalline bodies, apparently *Alcohols*, one of which has the empirical formula $C_{14}H_{22}O_4$, the other two being represented by the formula $C_{15}H_{22}O_4$. Tests for *Alkaloids* gave evidence of their presence in very small amount—too small, however, to justify further research.—*Trans. Brit. Pharm. Conf.* (Year-Book of Pharmacy), 1910, 435-444.

Podophyllum Emodi: Superiority of the Yield and Activity of the Resin.—Referring to his researches on the resin of *Podophyllum Emodi* communicated in 1892 (see *Proceedings*, 1903, 630), John C. Umney contributed some further notes at the 1911 Meeting of the British Pharmaceutical Conference, in which he records the results of recent examinations of rhizomes collected, in accordance with his suggestion, under different conditions and at different seasons. The present investigation is more than ever convincing that it is upon natural variations in the resin, most probably at different seasons of the year, that the varying results (recorded by different workers) have been obtained. All workers are agreed that the proportion of resin in the Indian variety (*P. Emodi*) is an average twice that of the American (*P. peltatum*); but in judging of the relative value and composition of the resins obtained by different workers, it is but easy to arrive at conclusions because of differences in process and nomenclature. It would certainly appear, however, that "picropodophyllin" is not an actual constituent of the drug, but is formed by decomposition of "podophyllo-toxin," which, together with "podophyllo-resin," an indefinite amorphous substance, represents the activity of the drug. The distinction of the two varieties of the drug is, however, not confined to the greater yield of resin from the Indian drug, but in that the resin from the present Indian material (collected after fruiting in 1910) contains twice as much podophyllo-toxin as the resin from Indian rhizomes examined in 1892, or that obtained from the American (*P. peltatum*)—the actual figures obtained being: Indian,

1892, 25.0%; Indian, after fruiting, 50.3%; American, (*P. peltatum*), 22.9%. The difference in the two Indian varieties, the author conjectures is due to the period of collection, the rhizomes of *P. Emodi* collected after flowering being much richer in podophyllo-toxin and consequently of greater activity than the rhizome of 1892, the collection period of which is not known.—*Trans. Brit. Pharm. Confer.* (Year-Book of Pharmacy), 1911, 388-391.

Insect Flowers: Nature of Poisonous Principle.—Referring to the investigation of insect flowers, which he undertook in 1880, in collaboration with Schlagdenhauffen, E. Reed now confirms the original statement that the toxic constituent of the insect flower is an acid, which they had named "pyrethro-toxic acid." To obtain this principle, Dalmatian insect powder is extracted by percolation with petroleum ether. By treating the soft extract left on distilling off the solvent, with a small quantity of alcohol at $60^\circ C.$, a white powder, melting point $125^\circ C.$, is separated. This is the magnesium compound of a resin which is named pyrethresin. The resin has an acid reaction. After removing this "pyrethresin" the residue is an oily mass containing an amorphous sugar. The residual oily substance is partly soluble in 3 per cent. potassium hydroxide solution. On treating this alkaline solution with tartaric acid, and shaking out with ether, that solvent, on evaporation, leaves a honey-like mass of pyrethro-toxic acid. Instead of treating the original petroleum ether residue with alcohol, it may be extracted with a 60 per cent. solution of chloral hydrate, and the solution thus obtained is shaken out with petroleum ether.—*Pharm. Zentralh.* LII (1911), No. 7, 173.

Indian Hemp: Questionable Value of the Iodine Number.—The recent suggestion by D. Hooper (1908) of a method for the commercial valuation of Indian hemp products based upon the iodine value of the active constituent, cannabinal, has elicited an inquiry into the possible value of the method for the standardization of these preparations in place of the present physiological one, by C. R. Marshall and J. H. Wigner, constituting a therapeutic committee of the British Medical Association. The method, it seemed to them, would be of value for purposes of standardization only if the active principle (or some inert substance which always accompanies it in a fixed ratio and is not easily removable

and pharmacologically inert a relatively low iodine value, or vice versa. If physiologically inert or almost inert substances possessing an iodine number approximating to that of the active principle occur in variable proportions in preparations of Indian hemp, the method is obviously of no value as a means of standardization. Unfortunately this appears to be the case. In order to reduce the sources of error, the authors decided to work with pure or approximately pure principles. They examined: (1) A sample of original cannabinal prepared by Wood, Spivey, and Easterfield in 1897, which had been kept in a sealed tube for eleven years, and which when tested appeared to have lost little, if any, of its pharmacological activity; (2) the same cannabinal after oxidation by a current of dry air, a process which has been shown by one of the authors to diminish its pharmacological activity; (3) various fractions obtained by the distillation of an extract of the same "charas" from which the above cannabinal was prepared.

The following iodine values, as determined by Hübl's method, are typical of those obtained:

FRACTIONS OBTAINED FROM 12-YEAR-OLD "CHARAS."		Iodine No.
Original cannabinal (strongly active).....	189	
Original cannabinal (after oxidation).....	184	
Lower terpene fraction.....	67	
Higher terpene fraction.....	180	
Residue after distilling off terpene (very slightly active).....	196	
Fractions boiling at 280° to 300° C. at 15 Mm. Hg. pressure (very slightly active).....	247	
Ditto (after oxidation).....	229	

The figures show that the very active sample of cannabinal gives a lower iodine number than similar and almost inert samples prepared from old charas; that the oxidation of cannabinal, although diminishing considerably the physiological activity, does not greatly lower the iodine value; and that the iodine number of the higher boiling terpenes, which possess no characteristic cannabis effect, approximates closely to that of active cannabinal. The determination of the iodine number seems, therefore, to be of no certain value as a means of estimating the pharmacological activity of cannabis preparations, and, consequently, it cannot be used as a substitute for physiological standardization.—Pharm. Journ. and Pharmacist, June 3, 1911, 740.

Extract of Indian Hemp, B. P.: Comparison with the Non-Official Commercial Extracts.—As pointed out by Dr. Hooper (see Proceedings 1895, 573), the official (B. P.) extract of Indian hemp is composed of a mixture of a green resin and brown water-soluble extractive matter. Merson (1904) showed that this brown extract was not readily soluble in alcohol, and that commercial extracts varied largely in the proportion of this substance they contain. Harold Dean has now made a series of experiments, the results of which are exhibited in three tables: one, based on the examination of various samples of Indian hemp, indicating the proportions in which the two components may be expected in the extract; the other two, showing the results of the examination of commercial samples of the extract. The results obtained fully bear out the numerous criticisms that have been made as to the variability of this extract as supplied by manufacturers. Nevertheless, the non-official extracts are preferred to the official, their predominance being due to the fact that the pharmacopœial preparation is unsatisfactory, being composed of two constituents, the resin and the brown extraction, which show a tendency to separate, and, moreover, is incompletely soluble in alcohol, which makes the preparation of the tincture troublesome and messy. Therefore a demand has arisen for an extract soluble in alcohol, and there is a general idea that the B. P. extracts ought to be soluble in alcohol. Such an extract can be obtained by the simple method of washing away the brown extraction with warm water, after the spirit has been distilled off, there being little doubt that only the resinous portion of the extract contains the active principle. No doubt this is the method by which most of the soluble commercial samples mentioned in the table were obtained, and the author urges that this method be adopted in the B. P.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1911, 402-406.

Tincture of Opium, B. P.: Loss of Morphine in Its Preparation.—From time to time statements have been made to the effect that in the conversion of opium into extract or tincture a loss of alkaloidal results, or to put the matter with strict accuracy, that the quantity of morphine shown by the official assay of a sample of opium is always greater than the finished product, even when the utmost

care has been taken to secure the perfect exhaustion of the drug. E. H. Farr and R. Wright, with the view of testing the accuracy of these statements, have now made experiments on the preparation of the Tincture, which they describe in detail, with results that go to prove that when the official methods are followed throughout there is always a loss of morphine. In seven samples of opium worked upon this varied between the limits of 0.8 per cent. and 9.0 per cent. of the whole, with an average for the whole series, as shown in the tabulated statements of the results obtained. In the light of these results it is evident that, notwithstanding the amount of careful thought and experimental work which has been devoted to the subject of opium assay, there is still room for a thorough and systematic review of the whole subject. The loss appears to the authors to be probably due to occlusion of the alkaloid, rendering the complete extraction by water or alcohol a matter of practical impossibility, or to some other factor or factors which have hitherto escaped recognition.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1911, 392-399.

Aromatic Fluid-Extract of Cascara Sagrada: New Formula and Process.—Introducing the subject of an improved formula for making an aromatic fluid extract of cascara sagrada, R. C. Cowley observes that the physiological activity of glucoside containing drugs does not depend always on the glucosides and that this possibly explains the increased activity of cascara sagrada by aging the bark. From the experience of others, and more particularly from that recorded by White and Robinson in 1902 (see Proceedings 1903, 801), the author assumed the presence of a fermentable glucoside in cascara sagrada, and that the activity of this drug is at least in part due to the products of its decomposition. He had, moreover, found by digesting the powdered bark with water and a small proportion of emulsion that the percolate required a much larger proportion of ammonia for neutralization than when the drug was exhausted by water alone; and, furthermore, that when alkalinity was maintained during evaporation, the extract was free from the bitterness of cascara sagrada, and it still maintained its activity. He therefore conceived the idea of effecting the hydrolysis of the glucosides of the bark by preliminary treatment with acid and water, the experiment resulting in the adoption of the following

method for preparing an aromatic fluid extract:

Cascara Sagrada (No. 20 powder)	20 oz.	100.00
Diluted Sulphuric Acid...	1 fl. oz.	5.00
Alcohol (90 per cent.)...	4 fl. oz.	20.00
Oil of Coriander.....	20 minims	0.21
Oil of Orange.....	20 minims	0.21
Spirit of Chloroform.....	80 minims	0.84
Gluside (soluble).....	13 grains	0.15
Liquid Extract of Licorice	4 fl. oz.	20.00
Solution of Ammonia.		
Distilled Water, of each a sufficient quantity.		

Boil the cascara sagrada with 7½ pints (750) of distilled water and the diluted sulphuric acid for two hours; allow the mixture to stand for twenty-four hours, then pack in a percolator and percolate with distilled water until the cascara bark is exhausted. Neutralize the percolate with solution of ammonia, and evaporate on a water bath to 12 fluid ounces (60), maintaining slight alkalinity throughout the operation by the further addition of solution of ammonia from time to time. Dissolve the oils and gluside in the alcohol, and the spirit of chloroform and the liquid extract of licorice. Mix this with the concentrated solution of cascara bark, and, if necessary, make up to 20 fluid ounces (100) with distilled water. The product is very elegant and possesses undoubted activity.—Chem. and Drug., July 22, 1911, 46.

Disinfectants: Bacteriological Testing and Standardization.—At the forty-seventh Annual Meeting of the British Pharmaceutical Conference (1910), several interesting papers were read and discussed at length on the bacteriological testing and standardization of disinfectants. Prof. Sims Woodhead read a paper by Dr. Constant Power and himself on the "bacteriological standardization of disinfectants," in which the authors fall back on a comparative valuation of disinfectants, taking phenol as their standard, and using a modification of the Rideal-Walker drop method, as giving promise in theory of the most precise results, they discuss the following factors: Organisms to be acted upon; number of micro-organisms and amount of organic matter to be added; strength and number of dilutions; time during which the disinfectant is allowed to act; temperature.

Prof. R. Tanner Hewlett read a paper on the "*Woodhead-Power method of testing disinfectants*" (above outlined), in which he questions the necessity of "seeding" the subcultures with more than a standard loopful. He thinks that the use of *Bacillus coli* instead of *B. typhosus* is probably a desirable change, although this depends on further investigation.

C. T. Kingsett read a paper by R. C. Woodcock and himself on the subject of "*Bacteriological testing of certain disinfectants and the results as affected by varying conditions*," dealing mainly with commercial disinfectants of the coal-tar order, classifying them into "Emulsified Disinfectants" and "Homogeneous Disinfectants." The normal Rideal-Walker co-efficients in respect of *Bacillus typhosus* were first determined, then the normal co-efficients with regard to other germs, the influences of higher temperature as affecting the *B. typhosus* co-efficient, and an extension of time, simply or coupled with a higher temperature. The results are tabulated for purposes of ready comparison, and they appear to show that while the R.-W. test may very well serve to determine the relative germicidal values of similarly prepared preparations of a coal-tar nature, it is not applicable for ascertaining the real or relative values of other disinfectants of a different chemical nature.—Trans. Br. Pharm. Conf. (Year-Book of Pharmacy), 1910, 329-362.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 506)

The present installment consists of formulas which the writer has collected from various sources. A great many of these preparations are frequently prescribed, but the average pharmacist can not readily find the formulas.

Special attention is called to the apparent inconsistency in the proportion of salicylic and boric acid in Thiersch's Solution No. 45, and Thiersch's Powder No. 46 as per formulas quoted from the Hospital Formulary of the Department of Public Charities, N. Y. City.

Greater uniformity is undoubtedly very desirable.

Comments and criticisms are invited.

Respectfully submitted,

OTTO RAUBENHEIMER, Chairman.

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Abbreviations can be found in May JOURNAL, p. 504.

Formulas No. 1 to 32, see February JOURNAL, p. 169 to 173.

Formulas No. 23 to 30, see April JOURNAL, p. 366 to 368.

Formulas No. 31 to 41, see May JOURNAL, p. 505 to 506.

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No. 42.

UNGUENTUM IODI DENIGRESCENS.

Stainless Iodine Ointment.

Iodine	5 gm.
Petrolatum	95 gm.

To make 100 gm.

Melt the Petrolatum and gradually add the Iodine in fine powder with constant stirring. Continue heating until the combination is completed and then stir until cool. This ointment has the great advantage of being absorbed when rubbed on the skin without causing a stain.

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Can. Form.

No. 43.

UNGUENTUM ICHTHIOLIS, 10 PER CENT.

Ichthyol Ointment 10%.

Ichthyol	10 gm.
Hydrous Wool-fat.....	45 gm.
Yellow Petrolatum.....	45 gm.

To make 100 gm.

Melt the Hydrous Wool-fat and the Yellow Petrolatum (which mixture is official in the new German Pharmacopœia as *Unguentum Molle*, Formula No. 7), and when cool incorporate the Ichthyol, which chemically is ammonium ichthyol sulphonate.

NOTE: This ointment will darken very considerably by age and the attention of physician and patient should be called to this.

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No. 44.

UNGUENTUM IODI LUGOL.

Lugol's Iodine Ointment.

Pommade iodurée (Lugol).

	No. 1	No. 2	No. 3
Potassium Iodide. 1.2 gm.	8.0 gm.	10.0 gm.	
Iodine	0.6 gm.	1.0 gm.	1.2 gm.
Lard	60.0 gm.	60.0 gm.	60.0 gm.

Dissolve the Potassium Iodide in a little water or glycerine, add the Iodine and triturate until dissolved and incorporate the Lard.—Dorv.

No. 45.

LIQUOR BORO-SALICYLATUS.

Boro-Salicylated Solution.

Thiersch's Solution.

Salicylic Acid	2 gm.
Boric Acid	12 gm.
Water, a sufficient quantity	
To make	1000 cc.

Make a solution.

Bellevue Hospital Form.

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No. 46.

PULVIS BORO-SALICYLATUS.

Boro-Salicylated Powder.

Thiersch's Powder.

Salicylic Acid	1 part
Boric Acid	8 parts
Mix intimately.	

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No. 47.

CARBASUS BORO-SALICY-LATA.

Boro-Salicylated Gauze.

Thiersch's Gauze.

Boro-Salicylated Powder.....	1 part
Sterilized Water.....	50 parts
Gauze, a sufficient quantity.	

Saturate the absorbent Gauze with the solution and retain it therein completely immersed for at least 24 hours. Then wring it out, more or less completely, as may be required.

NOTE: It will be noticed that the proportion of salicylic and boric acid is 1 and 8 in the powder, but 1 and 6 in the solution. It would be very desirable to have uniformity and perhaps even percentage strength as f. i. 1 and 9.—O. R.

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No. 48.

COLLYRIUM ADSTRINGENS LUTEUM.

Yellow Astringent Eye Lotion.

Ph. Aust. VIII.

Zinc Sulphate	5 parts
Ammonium Chloride	2 parts
Camphor	2 parts
Saffron	1 part
Diluted Alcohol—68%.....	100 parts
Water	890 parts

To make1000 parts

Dissolve the Zinc Sulphate and Ammonium Chloride in the Water and add the solution of the Camphor in the Diluted Alcohol. Lastly add the Saffron, set aside for 24 hours, agitating frequently and then filter.

Yellow Astringent Eye Wash is a clear yellow liquid of astringent taste and with an odor of camphor and alcohol.

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No. 49.

PASTA ZINCI MODIFICATA.

Modified Lassar's Paste.

Zinc Oxide	12 5 gm.
Starch, in fine powder.....	12.5 gm.
Ointment of Rose Water.....	75 gm.

To make 100 gm.

Mix thoroughly.

This ointment has the advantage of cooling properties.

Skin and Cancer Hospital, N. Y.

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LIQUOR AMMONIÆ DETERGENS.

Detergent Solution of Ammonia.

Household Ammonia.

Stronger Ammonia Water.....	300 cc.
Oleic Acid	60 cc.
Alcohol	60 cc.
Distilled Water, a sufficient quantity	

To make 1000 cc.

Mix.

About 5 per cent. of Borax may be added if desired, together with a little oil of lavender or other suitable perfume.

NOTE: If a "cloudy" preparation is desired, about half of the distilled water should be replaced by "hard" tap-water, the exact proportion depending upon the amount of total solids in the hard water.—B. P. Cx.

Editorial Notes and Announcements

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 Progress of Pharmacy.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

REPRINTS.

The Stoneman Press Co., Columbus, O., will furnish reprints of papers appearing in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the prices named below, when the order is received before the type has been distributed:

50 copies, 4 pages, no cover, \$2.25, with cover, \$4.00.
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200 copies, 12 or 16 pages, no cover, \$6.50, with cover, \$8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co.



DENVER MEETING.

Denver people never do anything by halves; their usual method is to observe how other cities have done a thing and then to improve upon it. What they have in contemplation for the entertainment of the Sixtieth Annual Convention of the American Pharmaceutical Association, August 19-24, is partially shown in the tentative program which appears in a Council letter published in this issue.

From this program, it is apparent that the visitors will need to bring their full enjoyment capacity with them in order to absorb all of the various entertainments the Denverites have provided. The day's excursion to Glacier Lake will, according to all accounts, furnish an outing that for variety of scenery can not easily be excelled.

This issue also contains proposed routes of travel with information concerning rates from states both east and west. Members interested in having any change made in the program of meetings and entertainment should send their propositions to the Council Secretary. Those who have suggestions to offer concerning routes of travel proposed, should send them to the Chairman of the

Transportation Committee, Mr. Caswell A. Mayo, 66 W. Broadway, New York City.

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ROUTES AND RATES FOR THE DENVER MEETING.

Preliminary Report by the Committee on Transportation.

Members are requested to express their preferences to the Chairman of the Committee.

The Committee on Transportation has been in consultation with all the railroads leading to Denver and requests the members of the Association to express their individual preferences by letter or postcard directed to the Chairman of the Committee, Caswell A. Mayo, 66 West Broadway, New York, answering the following questions:

1. Which of the following routes do you prefer—A, B or C.?
2. Which excursion, if any, will you take after the meeting?

ROUTE A.

FRIDAY, AUGUST 16—Leave New York (Lehigh Valley), 9:55 a. m. Leave Philadelphia (Lehigh Valley), 8:30 a. m. Leave Buffalo (Grand Trunk), 10:55 p. m.

SATURDAY—Arrive Chicago, 1:30 p. m. Leave 6 p. m. (Santa Fe).

MONDAY—Arrive Denver, 7 a. m.

ROUTE B.

FRIDAY, AUGUST 16—Leave New York (Lehigh Valley), 9:55 a. m. Leave Philadelphia, 8:30 a. m. Leave Buffalo (Grand Trunk), 10:55 p. m.

SATURDAY—Arrive Chicago, 1:30 p. m. Leave (C. B. & Q.), 5 p. m.

SUNDAY—Arrive Denver, 7:30 p. m.

ROUTE C.

FRIDAY, AUGUST 16—Leave Boston (B. & A.), 11:30 a. m. Leave New York (N. Y. Central), 9:40 p. m. Leave Buffalo (L. S. & M. S.), 10:35 p. m.

SATURDAY—Arrive Chicago, 12:50 p. m.

FRIDAY, AUGUST 16—Leave Philadelphia (Penn.), 7:02 p. m. Leave Washington (Penn.), 6:45 p. m. Leave Baltimore, 7:52 p. m.

SATURDAY—Arrive Chicago, 2 p. m. Leave Chicago (C. B. & Q.), 5 p. m.

SUNDAY—Arrive Denver, 7:30 p. m.

Members may leave New York on a later train than that named, either on the N. Y. Central or Pennsylvania road, scheduled to arrive in time to connect with the C. B. & Q. train scheduled under Route C by paying an extra fare between New York and Chicago.

(Committeemen will please insert here their individual recommendations as to best routes and schedules.)

FROM THE PACIFIC COAST.

The Trans-Continental Passenger Association has made an excursion rate to Denver of \$55 from California common points, from Bellingham, Everett, Spokane, Seattle and Tacoma, Washington, New Westminster, Vancouver and Victoria, B. C., and Portland, Oregon. Local fare must be paid to reach these common points. On arbitrary routes, going one way and returning by another, additional fare will be charged, details of which can be had from local ticket agents.

These tickets will be placed on sale at California points on August 14, 15 and 16 and Northern Pacific Coast points on August 14, 15 and 16. These tickets must be validated at Denver on the day on which the return journey begins. Otherwise they will not be accepted.

Pacific Coast members should confer with Charles E. Whilden, 1727 Pine street, San Francisco, with a view to arranging for a special party.

EXCURSIONS AFTER THE MEETING.

Many members will, no doubt, take advantage of this occasion to see something of the scenery of the Rocky Mountains and possibly of the Yellowstone Park. A cheaper rate can be obtained for such excursions by buying the ticket at the point of departure.

THE CIRCLE TRIP.

The Circle trip gives four days in the Colorado Mountains, affording a view of the most striking features in that section of the Rockies. On this trip the members travel by day only, stopping each night at a hotel. The fare is \$28 for the round trip, or in parties of ten or over \$20.80.

THE SALT LAKE TRIP.

The Salt Lake trip takes in the Royal Gorge of the Arkansas, the Tennessee Pass, and carries the traveler through Leadville, Grand Junction, and across the Utah desert to Great Salt Lake and return.

THE YELLOWSTONE PARK TRIP.

The Yellowstone Park trip includes the Salt Lake trip. The figures given for the other routes include fare only. For the Yellowstone Park trip the fare only is given up to the Park entrance, but the stage fare and the hotel bills in the Park are also included.

A TRIP TO THE PACIFIC COAST.

Eastern members who may desire to take this occasion to visit the Pacific Coast can do so at a slightly increased expense. Below the fare is given by way of Denver and Salt Lake City. A visit to the Yellowstone Park may be made on this trip at an additional cost of \$55.50, this latter sum covering meals and four nights' lodgings in the Park, as well as fare from Salt Lake City to the Park.

SLEEPER FARES.

The sleeper fares are based on lower berth rate. On upper berths a discount of 20 per cent. is allowed. The sleeper fares given are, in some instances, approximate only.

RAILROAD AND SLEEPER FARES FOR ROUND TRIP TO DENVER.

	To Denver Only		Including Salt Lake	
	Fare	Sleeper	Fare	Sleeper
Boston	\$70.80		\$83.80	
New York...	67.80	\$22.00	80.80	
Baltimore ...	62.80		75.80	
Philadelphia	65.55		78.55	
Cincinnati ..				
Cleveland ...				
Chicago	30.00	12.00		
St. Louis....	25.00	11.00		
Atlanta				
New Orleans				
San Fran....	55.00			

	Including Yellowstone		Including San Francisco	
	Fare	Sleeper	Fare	Sleeper
Boston	\$131.80		\$113.30	
New York...	128.55			
Baltimore ...	123.55		105.30	
Philadelphia	126.30		108.05	
Cincinnati ..				
Cleveland ...				
Chicago	90.75			
St. Louis....	88.25			
Atlanta				
New Orleans				
San Fran....				

A PERSONALLY CONDUCTED TOUR.

The Gillespie-Kinports Company, of New York, a reliable and experienced tourists' agency, has offered to arrange a personally

conducted tour from the East to Denver and Yellowstone Park on which members would be relieved of all the cares of travel by a special conductor. Members on this tour could go out as outlined above in Route C, but would return from Yellowstone Park by way of St. Paul and Duluth, traveling from Duluth to Buffalo by steamer through the Great Lakes, arriving back at New York on September 7.

The cost of this personally conducted tour will be \$220, which covers all the following expenses: Railroad, steamship and Pullman fare for the round trip, all expenses in Yellowstone Park, including stage, hotels, etc., transfers, the Central Park auto trip, at Colorado Springs, and trip through Garden of Gods, trolley trip, Salt Lake and Minneapolis. In fact, all expenses except meals en route; as these are served a la carte on all roads it is difficult to include same. At the Antlers, Colorado Springs, simply lodging is included, as the hotel is on the European plan, nor does this rate include the stay in Denver.

LOCAL TRAIN ARRANGEMENTS.

When the routes have finally been decided on further information can be obtained regarding the departure of trains from any particular point from the nearest member of the Committee on Transportation, whose names are given below:

Atlanta, Ga.—W. S. Elkin, Jr., Peachtree and Marietta streets.

Baltimore, Md.—Charles Caspari, Jr., University of Maryland.

Boston, Mass.—C. Herbert Packard, 7 Central Square.

Chicago, Ill.—Wilhelm Bodemann, Hyde Park.

Cincinnati, O.—Charles G. Merrell, 5th and Butler streets.

Cleveland, O.—L. C. Hopp, 1104 Euclid avenue.

Denver, Col.—W. A. Hover, 1437 Lawrence street.

Minneapolis, Minn.—F. J. Wulling, Minnesota University.

San Francisco, Cal.—Charles W. Whilden, 1727 Pine street.

St. Louis, Mo.—H. M. Whelpley, 2342 Albion Place.

New York—Caswell A. Mayo, 66 West Broadway, *Chairman*.



CONFERENCE AND HEARING ON THE RICHARDSON BILL.

The recent Washington Conference of A. Ph. A. and N. A. R. D. representatives and the hearing before the congressional committee having the Richardson Bill in charge, seem to have been fruitful of good results. A statement in behalf of the two Associations was made by Frank H. Freericks, Esq., of Cincinnati, Ohio, which was a lucid explanation of the general sentiment of the retail drug trade upon the provisions of the bill. In substance Mr. Freericks stated that the retail druggists of the country were not interested in the bill from the viewpoint of self-interest, but from the viewpoint of the public interest and welfare. The retail drug trade is not disposed to say that every proprietary medicine is bad. There are proprietary remedies which are of value, but so far as the Associations are concerned, they are vitally interested in preventing the sale of medicines which are fraudulent, or habit-forming.

Referring to Section 7 of the bill which reads as follows:

"If, when a drug recognized in the U. S. Pharmacopœia or National Formulary is sold under or by *any* name which differs from the standard of strength, quality or purity as determined by the test laid down in the U. S. Pharmacopœia or National Formulary official at the time of investigation," he called attention to the fact the bill seeks to replace "A" in the present law with the word "*any*," and to change the place in which the U. S. P. and N. F. are mentioned, so that the effect would be to bring any preparation, no matter by what name sold, within its provisions.

He said the trade favored a change of Section 7 of the present law, which permits a deviation from the official standard of strength or quality provided it be set out on the label, for the reason that the laity and physicians generally were not sufficiently acquainted with U. S. P. and N. F. standards to understand the extent of such deviations. For example, a label "Tincture of Opium, 5 per cent.," would mean nothing to the person

who did not know that the official standard was 10 per cent.

There are cases, however, in which a variation from the official standards should be permitted. As for example, when formulas had been improved so as to furnish a really better article than the U. S. P. or N. F. formula. If no variation is permitted, then such an improved product can not be marketed. Such products should be permitted to be sold, provided they are not sold under an official title, or provided the title is so qualified by accompanying statements as to show clearly that it is not sold as being of official strength and quality.

He also referred to the use of crude drugs and chemicals employed in manufacturing which could not be sold under any name without incurring the penalty for misbranding, in case the clause was enacted as printed in the bill. For this reason he believed that Section 7 of the present act which reads, "Provided that no drug defined in the U. S. Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the bottle, box or other container thereof, although the standard may differ from that determined by the tests laid down in the U. S. Pharmacopœia or National Formulary," should be retained, and supplemented by an additional provision reading as follows: "Provided that nothing herein contained shall prohibit the sale of drugs or chemicals in their crude form when labelled "for technical purposes," "not for medicinal use."

By making this latter addition, the public would be safeguarded against drugs of improper strength and purity, while the use of such articles for manufacturing purposes would not be interfered with.

Referring to the clause which reads, "Third, if it contains any methyl alcohol or wood alcohol," he stated that the Associations were opposed to the use of wood alcohol in any medicinal preparation, whether for internal or external use, but felt that the provision as it now stood might operate to prevent its use in the arts for purely technical purposes, and suggested that the provision be supplemented by adding, "but this shall not prevent the sale of methyl or wood alcohol for use in the arts when sold under the name wood naphtha poison."

Concerning that portion of Section 7 which reads:

"That no cosmetic, hair preparation or hair dye or preparation containing any poison or deleterious ingredient," he argued that the language was too general and too indefinite, and that the particular substances or classes of substances should be specifically stated, since what might be considered injurious or deleterious by one person might not be so considered by reasonable persons generally. Almost any substance may be injurious or deleterious under certain circumstances and, consequently, there is room for great differences of opinion. By enumerating a list of substances which could not be employed without naming them on the label, such opportunities for dispute would be avoided.

He did not agree with those who contended that the sale of habit-forming drugs should be left exclusively to State regulation, since the States are powerless to regulate those transported in interstate commerce. As long as it would be possible for a man in Michigan to ship cocaine into Ohio, the latter State would be unable to control the traffic.

He also objected to the clause of the bill which related to the sale of drugs "direct to the consumer or laity which contains any habit-forming or deleterious ingredients," as also being too general and indefinite, and believed that this should be substituted by naming the substances which are to be considered as habit-forming or deleterious.

He also argued that packages in interstate commerce should be marked to show that their contents had been prepared by properly qualified persons, or by or under the supervision of a registered pharmacist. His argument also covered the sale of proprietaries containing narcotic and habit-forming drugs, and he contended that the presence of opium or its alkaloids in very small proportions, as in paregoric or brown mixture should not operate to bring such preparation within the limits of the law.

He said that the drug trade as a whole was heartily in favor of the strongest measures for the control of the entry into interstate commerce of habit-forming drugs, but that the regulations should not be burdened with unnecessary details, and he was inclined to believe that this subject could be better dealt with in a separate legislative measure than as a part of the Food and Drugs Act.

In conclusion, he submitted on behalf of the conference committee certain propositions to amend Sections 6, 7 and 8 of the Richardson Bill so that it shall read as follows:

"Section 6. That the term 'drug' as used in this Act shall include all medicines and preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use, and any substance or mixture of substances, or device, intended to be used for the cure, mitigation, or prevention of disease of either man or other animals; also soda and potash lye; also cosmetics, hair preparations and dyes, and toilet preparations; abortifacients, remedies for drug addiction, alcoholism, debility, obesity, and antilean; also tobacco, snuffs, tobacco substitutes, and all tobacco products. The term 'food' as used herein shall include all articles used as food, drink, confectionery, or condiment by man or other animals, whether simple, mixed, or compound."

"Section 7. That for the purposes of this Act an article shall be deemed to be adulterated—

"In the case of drugs—

"First. If, when a drug is sold under or by a name recognized in the United States Pharmacopœia or National Formulary, it differs from the standard of strength, quality or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary, official at the time of investigation: Provided that nothing herein contained shall prohibit the sale of drugs and chemicals, in their crude form, when labelled both "For Technical Purposes," "Not for Medicinal Use."

"Second. If its strength or purity fall below the professed standard of quality, under which it is sold."

"Third. If it contain any methyl alcohol or wood alcohol, but this shall not prevent the sale of methyl or wood alcohol for use in the arts, when sold under the name 'wood naphtha' 'Poison.'

"Fourth. If tobacco, snuff, or tobacco products contain any added poisonous or deleterious ingredient which may render such article injurious to health: or if any substance has been mixed or packed with these products so as to reduce or lower or injuriously affect their quality or strength; or if, any substance has been substituted in whole or in part for

the articles; or if they be mixed, colored, powdered, coated, or stained in any way whereby damage or inferiority is concealed; or if they consist in whole or in part of filthy, decomposed, or putrid animal or vegetable matter."

"Section 8. That the term "misbranded" as used herein shall apply to all drugs or articles of food or articles which enter into the composition of food or drugs, the package or label of which shall bear any statement, design, or device, regarding such article, or the ingredients or substances contained therein, which shall be false or misleading in any particular; or if it be a drug, (excepting brandy, gin, whisky, or wine) when offered for sale, barter or exchange from any state, territory, or the District of Columbia, into any other state, territory or the District of Columbia, which contains any of the following ingredients, to wit: acetanilid, antipyrin, acetphenetidin, anesthesin, alcohol, aspirin, alpha and beta eucain, arsenic, carbolic acid, chloroform, chloral, cocain, croton oil, cannabis, heroin, holocain, lead salts, morphin, mercury salts, except calomel, novocain, opium, orthoform, phenacetin, theobromin, trional, sulphonal, stovain, strychnine, veronal, cotton root, ergot, pennyroyal, rue, savin, tansy, or any compound or preparation or derivatives of any of the foregoing, unless it is marked to show that it has been manufactured or compounded by or under the personal supervision of a pharmacist legally registered or licensed as such in the State, Territory or District where manufactured or compounded, or when offered for sale directly to the consumer, unless it is marked to show, that it is being sold by or under the direct supervision of a physician or pharmacist legally registered as such in the State, Territory or District, where it is offered for sale; or if the label or labels or any advertisement, poster, circular, catalogue, price list, or other means of publicity, contain any false or misleading claims or representations, relative to disease or symptoms of disease; or if any false statement of any fact concerning its curative or remedial property be made or promulgated in any manner; or if, (except in the case of bona fide prescriptions of licensed practitioners of medicine or dental surgery and veterinary surgeons, in the course of their personal practice) the package fail to bear a statement on the label of the quantity or proportion of any of the following ingredients, to wit, acetanilid, antipyrin, acetphenetidin, anesthesin, alcohol, aspirin, alpha and beta eucain, arsenic, carbolic acid, chloroform, chloral, cocaine, croton oil, cannabis, heroin, holocain, lead salts, morphin, mercury salts except calomel, novocain, opium, orthoform, phenacetin, trional, stovain, strychnine, sulphonal, veronal, cotton root, ergot, pennyroyal, rue, savin, tansy, or any compound or preparation or derivative of any of the foregoing; and to any food or drug product which is falsely branded as to the State, Territory, or country in which it is manufactured or produced.

Matters of General Interest

THE MAIL-ORDER DOCTOR.

L. E. SAYRE,

Dean, School of Pharmacy, University of Kansas.

The writer is constantly receiving letters which bring to his notice the various problems, connected with the practice of legitimate pharmacy by pharmacists on the one hand, and, on the other, the legitimate practice of medicine by physicians. Not least among these problems is how to deal with what seems to be a purely business enterprise, showing itself in a certain form of practice of medicine that may perhaps be best designated as "mail-order practice." Circulars and circular letters, typewritten, written in script and in all possible attractive forms of communication, serve the public, through the mails, with all kinds of medical literature, and through this medium, large amounts of medicines, sometimes of a poisonous character, reach the homes of numerous families. These letters adroitly call the attention of the "Dear Madam" or the "Dear Mr. So and So" or even the "Dear Doctor" to phenomenal "discoveries" in therapeutics. One of these personal letters is now before me. From it I quote:

"My Dear Patient:

"Your statement of conditions is to hand. An earnest examination of it convinces me that both of us have reason for satisfaction. Yours has been a very stubborn case. You have suffered this way for a long time. It cannot be expected that such suffering as you have undergone can be banished in a few days. Your general health is now, no doubt, vastly improved. A few minor points aside, you are in every way better today than you were a month ago. You have suffered so much and so long that you can scarcely realize your improvement. It is often so with sick people. I have treated many in my time. I have watched your case since commencement. I speak, therefore, from a knowledge of the subject, etc., etc."

The patient to whom this affectionate epistle was addressed was found one afternoon unconscious under the influence of a very powerful narcotic which led to a request for an investigation of the medicine he had been taking. The same had been sent by one of these mail-order physicians. The results of

this investigation will be handed to the victim and to his friends.

Another one of these typical epistles I have before me.

"Mr. ———. We are sending you a sample package of the remarkable discovery for ———.

We say that it is a wonderful remedy for the simple reason that it actually does the work, gives instant relief and cures ———. Something that you have undoubtedly hunted for in vain ever since you became afflicted.

The trial treatment we are sending you is going to prove it. It is going to prove it in your particular case, if you follow the directions for its use.

We consider your search for a cure is now finally at an end.

No longer will it be necessary for you to leave home and friends behind and fly away to some other climate, to the mountains or seashore, undergoing heavy expense and waste of precious time from your work.

Just keep right on with your daily work and pleasure as usual.

By using this exceptional remedy you save money, spent in useless treatments of various kinds. You save time besides, etc., etc."

The above is another example of a personal communication, by mail, sent us by a patient, of a "mail-order physician."

In a circular which has been sent out to the pharmacists of Kansas, as the Chairman of the Committee on Drug Reform of the American Pharmaceutical Association, I have endeavored to bring before the profession of pharmacy some of the evils close at hand which relate to the loop-holes in the execution of the drug end of the Food and Drugs Law. These loop-holes are connected with the dispensing doctor, itinerant vendor and now we have a far more subtle problem, the control of the so-called mail-order doctor, who can dispense, apparently, all kinds of remedial agents, including narcotic poisons, and be absolutely independent of the provisions of the Food and Drugs Law. This problem, relating to the irregular practice of medicine and pharmacy and bringing them into proper control for the welfare of the public, is a huge problem and what is needed first on the part of the pharmacists, who should take an interest in it, is an *awakening* so that the exact conditions, which are now existing, can be plainly seen and felt. Some of the correspondents who have addressed the writer as Chairman of the Committee on Drug Reform concerning this agitation, do not seem to feel as keenly as others the grav-

ity of the situation. They wish to minimize its seriousness and are inclined to the opinion that an agitation, in this direction indicated, borders on fanaticism. But the majority of those who have considered it soberly, believe as one of the most eminent pharmacists in the country has written:

"I feel sure that you are making no mistake in this agitation, bearing upon drug reform, and I am sure that, as regarding all essentials in the matters you are bringing out, we shall find that we view the subject alike."

The question might be asked, "What can be accomplished by such an agitation without a well-thought-out plan for future action?" I have replied to such questions as these: Because one has not a clearly, well-thought-out plan from beginning to end is no reason why a start should not be made, if this is made in the right direction. One step at a time is all that one can expect to make. After the first step is made, the right second step and third, and so on, to the end may appear more and more plain as one advances. Perhaps it may be found that our present law can reach and properly control such practice. If not, a statutory law covering the case is possible—it is worthy to strive for.

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THE AMERICAN DRUGGISTS' FIRE INS. CO.

The regular quarterly meeting of the Executive Board of the American Druggists' Fire Insurance Co. was held at Cincinnati, on April 26th and 27th, Messrs. Avery, Beal, Kauffman, Heinritz, Rothwell, Zwick and Freericks, being present.

The Executive Board devoted much of its time to the carrying out of the orders given at the stockholders' and directors' meetings in January. During the first three months of the year it was shown that the company had written insurance amounting to \$2,560,730.21, which after allowing a 25 per cent. reduction, was at a premium charge of \$27,034.79. The total business in force on the first day of April amounted to \$8,501,169.90, at a premium of \$83,627.83. The increase in business for the first three months of the year over the first three months of last year amounted to \$569,996.88 at a premium increase of \$5,070.46. The re-insurance reserve of the company during that time was increased by \$2,055.60.

During the first quarter the company saved its policyholders the sum of \$9,011.59, which

said amount was retained by its policyholders. The net losses for the first three months of the year amounted to \$21,279.18.

The Executive Board authorized an additional investment in securities to cover the increase in re-insurance reserve.

The continued splendid growth of the company's business was a source of satisfaction. Arrangements were made to give special attention to those states from which a larger volume of business should be expected. The great fire waste and loss throughout the country during the winter season fully sustains the frequently announced position of the Executive Board, that the druggists of the country should be careful in carrying their insurance in companies having sufficient capital and assets and that are thus provided for every emergency, and in this connection it is requested that the drug trade of the country always have in mind that the American Druggists' Fire Insurance Company is the only Capital Stock Druggists' Fire Insurance Company in existence.

Communications and Correspondence

All communications must be signed by their Authors

TO THE MEMBERS OF THE COMMITTEE ON DRUG REFORM AND OTHERS WHO ARE INTERESTED IN THE COMMITTEE'S WORK.

The Chairman of this Committee wishes to ask its members and all those who are interested in the work of the Committee to write the Chairman of the above Committee and reply to questions which are herewith submitted. The Chairman of the Committee has circularized the State of Kansas and will make a report of his findings at the State Association meeting. He begs others who are interested to do the same for their particular State, so that at the coming meeting of the A. Ph. A. statistics may be furnished of interest and value.

1. Do physicians of your acquaintance dispense their own medicines?

2. Do they buy full standard preparations and drugs, or mainly proprietary remedies?

3. Are their goods inspected as in drug stores?

NOTE: That the public is served unwittingly by two standards is apparent to every one when the law fails to provide for an inspection of the physician's drug stock. It is true that physicians may invite such inspection, but it is our desire to know how many physicians voluntarily give such an invitation.

4. From what houses do they buy?

5. What sized stocks do they carry?

6. To what extent are doctors selling drugs and medicines on a call not actually prescribed by them?

7. Would your doctors prefer to dispense or prescribe?

8. What steps would you advise for the betterment of the aforesaid conditions?

9. Are your doctors in favor or opposed to the standardization law?

10. How are the physicians and druggists observing the spirit of the anti-narcotic law? Is the complaint of the former abusing their rights, and of the latter, who are legally restricted, dispensing morphine, cocaine and narcotics to habitues, true?

11. To what extent are drugs and medicines sold in your town by mail order houses and through clubs offering premiums?

12. Do other stores ever carry medicinal preparations of any kind? If so, what kind?

L. E. SAYRE,

Librarian of Kansas Pharm. Association;
Chairman of Committee on Drug Reform
of the American Pharmacy Association.

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BULLETIN No. 1 OF THE SECTION ON HISTORICAL PHARMACY.

Our great A. Ph. A. has now reached an age of three score, and its youngest offspring, the Historical Section, should do its full share to present the mother with valuable contributions at the Denver meeting. The members are asked to submit papers, letters, photos, books, etc., on historical subjects. Especially the Western members are earnestly requested to present papers on the development of pharmacy in the Western United States, in order to make such history available to future generations.

Let the Western pioneers of pharmacy become active and present a record of this history at Denver!

Let the "forty-niners" tell us of the early

history of pharmacy in California, and bring these golden nuggets to the Convention!

Let us all work so as to make the Denver meeting one that will long be remembered in the history of the A. Ph. A.!

Sincerely yours,

OTTO RAUBENHEIMER, Chairman.

EDWARD KREMERS, Historian.

CASWELL A. MAYO, Secretary.

Brooklyn, N. Y., May 15, 1912.

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SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Bulletin No. 3.

As the time for our Denver meeting approaches, the Committee on Practical Pharmacy and Dispensing is exceedingly anxious to secure as many contributions as possible for this occasion in order that we may have a wide variety of topics to discuss and digest. Heretofore we have been most fortunate in arranging very interesting programs for our meetings, but this year the Committee is aiming to excel all previous performances—if that is possible. If each member should assume but a small portion of his responsibility, this would be very easy of accomplishment. We hope to make an impression on our Western friends that will not soon be forgotten.

All members, whether new or old, are eligible as contributors, and it is hoped that we may have the pleasure of receiving original papers from many original sources for this meeting. Fraternally yours,

P. HENRY UTECH, Chairman.

J. LEON LASCOFF, Secretary.

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SOLUTION OF MAGNESIUM CITRATE.

If the camel's back will stand one more straw, may I add my formula and process for Solution of Magnesium Citrate to those given in the A. Ph. A. for May. I have been using it for twenty-five years and it possesses the charm of being quickly and easily prepared, requires no heating of bottles to sterilize them, and the preparation if properly stoppered seems to keep indefinitely. I prepare it for the trade in lots of ¼ dozen to ½ gross at a time, and have never had a complaint of

its spoiling either from precipitation or from fungus growth. The longest test I have given it, was from last August to February. A dozen was shipped the first part of August to a customer who ordered it in patent-stoppered bottles and by mistake the cork-stoppered were shipped. He was requested to send these back, but in the meantime he had sold four of these, returning only eight. Part of these were subsequently sent out on orders, but one bottle in some way was left over and set around in the laboratory until in February. Feeling the need of a purgative, I took about three-quarters of this bottle and found it as active as if freshly prepared.

I have frequently kept it two or three months at a time in perfect condition. My formula for one dozen is:

Citric Acid.....	10 oz. (Troy)	96 grains
Magnesium Carb.	5 oz. (Troy)	
Sugar	24 oz. (Troy)	
Oil of Lemon...	24 drops	

The Citric Acid, Boiling Distilled Water, q. s., and Magnesium Carbonate are put in a mortar and rubbed well together, and 2000 cc. hot water gradually added with constant trituration. As soon as the acid and magnesium carbonate are dissolved and the solution is clear, it is filtered through a wetted filter into the sugar, to which the oil of lemon has been previously added and the whole stirred until the sugar is dissolved. The liquid is then made up to 3000 cc. with distilled water and 250 cc. of this solution put in each bottle. The bottles are then filled to the shoulder with distilled water, 38 grains of potassium bicarbonate in crystals added to each bottle which is well stoppered and laid on its side in a cool place. I always use Jennings' magnesium carbonate in 2 oz. blocks and the potassium bicarbonate in crystals.

It makes a nicer looking preparation if the sugar and oil are dissolved before filtering, but it does not filter so rapidly.

You will observe that I have mixed my weights and measures. This was done for convenience.

Each bottle contains:

Citric Acid	408 grains
Magnesium Carb.	200 grains
Sugar	2 ounces, Troy
Oil of Lemon	2 gts.
Potassium Bicarb.	38 grs.
Dist. Water	q. s.

J. O. BURGE, Ph. G.

Council Business

COUNCIL LETTER No. 19.

PHILADELPHIA, April 30, 1912.

Members of the Council:

Motions No. 35 (Application for Formation of Saint Louis Branch, A. Ph. A.) and No. 36 (Approval of Report of Committee on Publication) have each received a majority of affirmative votes.

While voting in favor of Motion No. 36, Otto Raubenheimer objects to the decision of the Committee on Publication to furnish reprints of articles in the JOURNAL to authors at cost, urging that they be furnished *gratis*, upon request. Mr. Raubenheimer's objection has been referred to the Committee on Publication by whom it is now being considered.

In connection with vote on Motion No. 36, P. Henry Utech writes:

"In approving Motion No. 36, allow me to suggest that I heartily endorse the clause which urges immediate publication of the "Year Book." This book will in a way replace our former annual volume and will be eagerly looked for by a large number of our members who perhaps have not as yet become aware of the new form of our Proceedings. Should this "Year Book" be published simultaneously with the new National Formulary, I fear the delay will cause considerable confusion and embarrassment. Much time and a large amount of painstaking work yet remains to be done before our revised Formulary will be in readiness for publication, and it is the part of wisdom to proceed slowly and cautiously with the work to the end that we may have a more perfect product to offer our fellow-workers."

Edward Kremers votes in favor of Motion No. 36, and writes that:

"I desire to move at the same time that the Council reconsider, at the Denver Meeting, the question of publishing the Report on the Progress of Pharmacy as a separate volume, and to add the money thus saved to the JOURNAL, which could just as well publish the abstracts and do this at a much earlier date. The Reporter on the Progress of Pharmacy could be added to the editorial staff of the JOURNAL.

Is this motion seconded?

It should be stated that at the Boston (1911) meeting of the Council, held August 17, the subject of journalizing the Report on the Progress of Pharmacy was very carefully

considered, but the consensus of opinion was that the Report should be issued separately as a yearly volume; and this was decided upon, and the by-laws so amended.

Motion No. 37 (Appropriation of \$50 for binding, etc., of Proceedings). Moved by J. A. Koch, seconded by J. H. Beal, that an appropriation of \$50 be made to cover expenses of binding and shipment of Proceedings in stock.

The appropriation is approved by the Finance Committee.

Motion No. 38 (Election of Members). You are requested to vote on the following applications for membership:

No. 195. Lester Raymond Tyson, Mo. Pac. Hospital, 1600 California Ave., St. Louis, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

No. 196. Josiah Feller Wagner, Garden City, S. Dakota, rec. by Wm. B. Day and J. W. England.

No. 197. William Sydnor Bragg, Jr., Troy, Mo., rec. by W. A. Hickey and H. M. Whelpley.

No. 198. F. D. Garnett Walker, 331 20th St., Rock Island, Ill., rec. by Charles Moline and George W. Sohrbeck.

No. 199. George William Evans, Anderson, S. C., rec. by Wm. B. Day and J. W. England.

No. 200. Solomon A. Eckstein, 112 Wisconsin St., Milwaukee, Wis., rec. by Wm. B. Day and J. W. England.

No. 201. Paul W. Smith, 4836 Delmar Blvd., St. Louis, Mo., rec. by Wm. K. Ilhardt and H. M. Whelpley.

No. 202. Albert Guy, 4836 Delmar Blvd., St. Louis, Mo., rec. by Wm. K. Ilhardt and H. M. Whelpley.

No. 203. Herman J. Holthoefer, 5030 Prairie Ave., Chicago, Ill., rec. by J. H. Wells and W. B. Day.

No. 204. Myron Nile Ford, 235 N. Main St., Delphos, Ohio, rec. by J. H. Beal and W. A. Pearson.

No. 205. Milton Theis Esterly, Sergt 1st Cl. Hosp. Corps. U. S. A., Fort Mason, San Francisco, Cal., rec. by C. L. Brown and Wm. B. Day.

No. 206. John Henry Closson, 1209 7th Ave., West, Seattle, Wash., rec. by Chas. W. Johnson and A. H. Dewey.

No. 207. Schuyler Van Rennselaer Gross, 315 West Geyser St., Livingston, Montana, rec. by W. B. Day and E. N. Gathercoal.

No. 208. Clifford Henry Perry, Sergeant, Hospital Corps, Fort Andrews, Mass., rec. by Glen D. Gorton and Wm. B. Day.

No. 209. Herbert C. Hamilton, care Parke, Davis & Co., Detroit, Mich., rec. by E. M. Houghton and Harry B. Mason.

No. 210. George Washington Francis Boyd, 121 2d St., N. E., Washington, D. C., rec. by George Washington Boyd and Lewis Flemer.

No. 211. Oliver Atkins Farwell, 449 McClellan Ave., Detroit, Mich., rec. by J. H. Beal and Harry B. Mason.

No. 212. Joseph Mark Taber, care Elko County Hospital, Elko, Nevada, rec. by W. B. Day and J. W. England.

No. 213. George L. Parsons, Milton, Ia., rec. by George A. Kiedaisch and Willis J. Teeters.

No. 214. Bolivar Jurador, Panama City, Panama, rec. by Albert Schneider and H. M. Whelpley.

The Committee on Revision of the Constitution and By-Laws of the Association is actively engaged in its task. Simplicity and increased efficiency in the management of the Association is desired, and the members of the Council are requested to send suggestions for amendments to the Chairman of the Committee, J. W. England, as soon as possible.

J. W. ENGLAND,

Secretary of the Council.

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COUNCIL LETTER No. 20.

PHILADELPHIA, May 21, 1912.

Members of the Council:

Motions No. 37 (Appropriation of \$50 for binding, etc., of Proceedings), and No. 38 (Election of Applicants for Membership from Nos. 195 to 214, inclusive) have each received a majority of affirmative votes.

The following communication has been received from Charles H. LaWall, Secretary of the Scientific Section:

"As I will not be able to be present at the annual meeting of the A. Ph. A. at Denver this year, I would like the Council to appoint a temporary secretary in accordance with the by-laws adopted by the Scientific Section at the Boston meeting which read: 'In case the Secretary is unable to attend the annual meeting he shall notify the Council to that effect and the Council shall then appoint a temporary secretary.'"

Motion No. 39 (Temporary Secretary of Scientific Section). Moved by G. M. Beringer, seconded by J. W. England, that the Council appoint Freeman P. Stroup, of Philadelphia, as Temporary Secretary of the Scientific Section, to take the place of Charles H. LaWall, Secretary.

The General Secretary announces that the Record Book used for the registration of members in attendance at the annual conventions was completely filled at Boston. The book constitutes a part of the permanent records of the Association, and has to be specially printed and bound.

Motion No. 40 (New Record Book). Moved by J. H. Beal, seconded by J. W. England, that the General Secretary be authorized to have a new record book prepared in time for the Denver Convention, and that there be appropriated a sum not exceeding \$25 for this purpose.

This motion has been approved by the Chairman of the Finance Committee.

Motion No. 41 (Journalizing the Report on the Progress of Pharmacy). Moved by Edward Kremers, seconded by A. H. Clark, that the Council reconsider at the Denver Meeting, the question of publishing the Report on the Progress of Pharmacy as a separate volume, and to add the money thus saved to the JOURNAL, which could just as well publish the abstracts and do this at a much earlier date. The Reporter on the Progress of Pharmacy could be added to the Editorial Staff of the JOURNAL.

The following Tentative Program for the Sixtieth Annual Meeting of the Association, at Denver, August 19-24, 1912, is submitted by the General Secretary, Secretary of the Council and Local Secretary.

TENTATIVE PROGRAM FOR THE SIXTIETH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Denver, Col., August 19-24, 1912.
(Headquarters, Brown Palace Hotel)

Monday, August 19—

9:00 A. M. Meeting of the Council.
10:30 A. M. Meeting of the National Association of Boards of Pharmacy.
3:00 P. M. First General Session.

(The Nominating Committee will meet immediately after the adjournment of the First General Session.)

9:00 P. M. President's Reception.

Tuesday, August 20—

9:00 A. M. Meeting of the Council.
10:00 A. M. Second General Session.
3:00 P. M. Section on Commercial Interests.
8:00 P. M. Section on Commercial Interests (second Session).
8:00 P. M. Meeting of the Conference of Pharmaceutical Faculties.

Wednesday, August 21—

9:00 A. M. Meeting of the Council.
10:00 A. M. Section on Education and Legislation.
3:00 P. M. Section on Practical Pharmacy and Dispensing.
3:00 P. M. Section on Education and Legislation (second Session).
6:30 P. M. Separate Reunions of College Alumni.
9:30 P. M. Smoker.

Thursday, August 22—

9:00 A. M. Meeting of the Council. (Organization of the Council for 1912-13.)

- 10:00 A. M. Section on Scientific Papers.
 3:00 P. M. Section on Scientific Papers (second session).
 8:00 P. M. Section on Practical Pharmacy and Dispensing (second Session).
 8:00 P. M. Joint Session of Boards of Pharmacy and Section on Education and Legislation.
 Friday, August 23—
 8:00 A. M. Mountain Excursion to Glacier Lake; visiting en route the University of Colorado, and Boulder. Chantauqua Entertainment by the citizens of Boulder. Returning to Denver at 6 p. m.
 8:00 P. M. Section on Historical Pharmacy.
 Saturday, August 24—
 9:00 A. M. Meeting of the Council.
 10:00 A. M. Final General Session.

In arranging the above program it has been sought, as far as possible, to have the first session of each Section or Society at a time when no other meeting is in progress. When the time allotted is not sufficient for the completion of the work, it is presumed that the Section or Society will arrange for adjourned meetings at such times as will not interfere with other portions of the general program.

Comments on the above program and motions for amendment should be sent to the Secretary of the Council, J. W. England, 415 N. 33d St., Philadelphia, Pa., in time for the next issue of the JOURNAL.

PROGRAM OF SPECIAL ENTERTAINMENTS FOR LADIES ATTENDING THE SIXTIETH ANNUAL CONVENTION.

In addition to the entertainments of the general program printed above, the Local Committee has arranged for the following special excursions and entertainments for the ladies in attendance:

- Tuesday, August 20—
 9:00 A. M. Fifty mile trolley ride, visiting the foothills about Denver.
 8:00 P. M. Concert and moving pictures by E. C. Fine, of Boulder.
 Wednesday, August 21—
 9:00 A. M. Seeing Denver in Automobiles.
 2:00 P. M. Matinee at Elitch's Gardens.
 Battle of the Monitor and Merimac.
 Zoological Gardens.
 8:00 P. M. Toast Banquet tendered by the ladies of the Denver State Pharmaceutical Association.
 Thursday, August 22—
 9:00 A. M. Autos.
 3:00 P. M. Card Party at Brown Palace.
 Saturday, August 24—
 Auf Wiedersehn—Au Revoir—Adios.

Do you approve above Tentative Program? This will be regarded as *Motion No. 42 (Approval of Tentative Program for 1912 Annual Meeting)*.

Motion No. 43 (Election of Members). You

are requested to vote on the following applications for membership:

No. 215. Isaiah Benjamin Miller, 5 and 7 Main St., Cape Girardeau, Mo., rec. by H. M. Whelpley and Wm. B. Day.

No. 216. Albert C. Crawford, Leland Stanford Junior University, Stanford University, Cal., rec. by J. W. England and W. A. Pearson.

No. 217. Joseph F. Shreve, Jacksonville, Ill., rec. by H. C. Christensen and James P. Crowley.

No. 218. James Clothier Sims, 1716 Murray Ave., Pittsburgh, Pa., rec. by J. A. Koch and J. S. O'Brien.

No. 219. Theodore Christian Bode, 803 F St., Salida, Col., rec. by O. L. Bresler and C. M. Ford.

No. 220. Lawrence Roscoe Marglous, 3947 Kennerley Ave., St. Louis, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

No. 221. Edwin Alexander Miller, Cape Girardeau, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

No. 222. Isidore A. Forster, 3129 Johnston Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 223. Heinrich Vennemann, Fort Snelling, Minn., rec. by Wm. B. Day and J. W. England.

No. 224. Jacob Galdstein, 1231 W. Madison St., Chicago, Ill., rec. by A. H. Clark and J. H. Beal.

No. 225. Albert Otto Zwick, M. D., 1104 East MacMillan St., Cincinnati, Ohio, rec. by J. H. Beal and Geo. B. Kauffman.

No. 226. William George Gaessler, Iowa State College Agricultural Experiment Station, Ames, Iowa, rec. by Geo. B. Kauffman and Clair A. Dye.

No. 227. George Comings Whitmore, 601 Harrison Ave., Leadville, Col., rec. by Chas. M. Ford and F. W. Nitardy.

No. 228. Gebhard B. Wagner, Butler, Pa., rec. by J. A. Koch and J. S. O'Brien.

No. 229. Charles Elmer Walley, 3886 Brighton Road, Pittsburgh, Pa., rec. by J. A. Koch and J. S. O'Brien.

No. 230. Gustav Kring, 2735 South Broadway, St. Louis, Mo., rec. by Wm. K. Ilhardt and Wm. H. Lamont.

No. 231. Joseph Young Dendy, Sergeant, Hospital Corps, U. S. Army, Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and Frederick Randolph Williams.

No. 233. Samuel Cook, Sergeant Hospital Corps, U. S. Army, Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and Frederick Randolph Williams.

No. 234. Thomas Joseph Szykowny, 168 41st St., Pittsburgh, Pa., rec. by J. A. Koch and Fred J. Blumenschein.

No. 235. George Nelson Rawleigh, 601 N. 6th St., Paducah, Ky., rec. by H. M. Whelpley and W. P. Overstreet.

J. W. ENGLAND,
 Secretary of the Council.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.



GUSTAVUS RAMSPERGER.

Gustavus Ramsperger, the dean of German pharmacists in this country, is at rest, after a life full of years of usefulness and honor. He met his death by falling from the window of his apartment in Central Park West in New York, on May 6th.

Mr. Ramsperger was born in Germany in 1834, and was educated as a pharmacist at the University of Tubingen. He came to this country in 1851, and purchased the drug store at 62 Oliver street, which he had for sixteen years. In 1867 he became a partner in the Faber-Balluff store at the corner of Thirty-eighth street and Sixth avenue, and in 1873, sold out his interest, and in 1875 re-entered the business in Brooklyn; and in 1884 sold this store to his nephew. Since then he has not been actively identified with business, but has traveled widely.

Mr. Ramsperger founded the German Apothecaries Society of New York sixty years ago, and was honorary vice-president of it at the time of his death; and was, also, honorary vice-president of the New York College of Pharmacy, of which he was one of the founders. He was a life member of the American Pharmaceutical Association, which he joined in 1860.

He was unusually well-informed in matters pharmaceutical, and took a deep interest in the New York College of Pharmacy, in the German Apothecaries Society, and in the New York Branch of the American Pharmaceutical Association.

Genial in temperament and kindly in disposition, his pleasing personality and sterling character won the love and respect of a wide circle of friends and associates.

He leaves a son and a daughter, the wife of Otto P. Amend.

J. W. E.

F. Henry Parker, of Burlington, Vt., died on March 10, 1912, aged fifty-three years. He joined the American Pharmaceutical Association in 1909.—J. W. E.



Herschell Boynton, of Biddleford, Me., died on March 20, 1912, aged sixty-three years. He has been a member of the American Pharmaceutical Association for thirty-seven years.—J. W. E.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



PITTSBURGH BRANCH.

The last meeting of the Pittsburgh Branch for the 1911-12 course took place Friday evening, May 10. It proved to be of unusual interest and value, and if the proceedings could have been listened to and participated in by each proprietor of a pharmacy in this district they would have been of great help to all in the conduct of their respective stores. Among the subjects covered were the duty of the druggist under the law with reference to the dispensing of poisons; the propriety of and the duty of a dispenser in the refilling of habit-forming drugs; the handling of intoxicants and sales of alcohol; the duty of the relief clerk concerning the display of his registration certificate; the attitude of the honest pharmacist toward fake proprietaries, both in his sales and his prescription department; the wisdom of preparing our own U. S. P. and N. F. preparations, from the economical as well as truthfulness-to-formula standpoint; all of the utmost value in their commercial bearing. The retail druggist who fails to

avail himself of the practical teachings of this post-graduate course, which is frequently tendered to him, loses something that can scarcely be computed from a monetary outlook, its value being beyond price.

The professional side likewise was well covered. Dr. Saalbach's paper, "Some of the Good Things of the National Formulary," will be found elsewhere in these columns; Dr. Kutscher's "Dont's in Pharmacy" was instructively interesting and full of excellent suggestions concerning the things not to do, and was greatly enjoyed by the many young clerks and students present. Dr. Blumenschein presented a resumé of the influence of the Pittsburgh Branch upon the forthcoming editions of the U. S. Pharmacopœia as indicated by acceptance of its recommendations submitted to the Revision Committee from time to time.

Owing to the absence of Dr. J. C. Wallace, his paper, "Present Status of National Legislation," not having reached the Secretary had to be omitted. Dr. J. A. Koch volunteered to occupy the time allotted to Dr. Wallace by an expose of the methods employed by the Revision Committee of the United States Pharmacopœia in preparing the Ninth Decennial Revision of that work, which he presented in generous detail and which proved a revelation to the uninitiated concerning the immense amount of labor there is involved, and made it quite plain why it requires so much time after the convention has adjourned before the Pharmacopœia is ready for distribution.

Dr. Koch also submitted the latest list of proposed deletions from the Pharmacopœia, which brought out quite an interesting discussion. In the main the list of articles to be deleted was commended. Dr. Kutscher objected to the omission of Cataplasma Kaolini for reason that it is being freely prescribed by a good class of medical practitioners, and should they continue to indicate it, which they no doubt will, there being no official standard for same will result in extending the growth of innumerable proprietary preparations of varying formulae, hence on motion of Dr. George W. Kutscher, supported by Dr. F. J. Blumenschein, it was unanimously

Resolved, That it is the sense of the Pittsburgh Branch of the American Pharmaceutical Association that both kaolinum and its official preparation, cataplasma kaolini, should be retained in the ninth decennial revision of the U. S. Pharmacopœia.

Owing to the fact that June will be a busy month among our members because of preparation for commencement exercises at the college, and the meeting of the Pennsylvania Pharmaceutical Association at Buena Vista Spring, it was decided to omit the June meeting. Therefore the Branch stands adjourned until the second Friday in October.

B. E. PRITCHARD, Secretary.



NEW YORK BRANCH.

In addition to a score or so of members there were present at the meeting of the New York Branch of the American Pharmaceutical Association on the evening of May 13th, several visiting pharmacists and physicians and a delegation of about a dozen members of the New York Women's Pharmaceutical Association. The meeting was devoted chiefly to a symposium on the subject of "Ergot" which was quite interesting.

Following the report of Treasurer Joseph Weinstein the committee on the progress of pharmacy reported through its Chairman, Otto Raubenheimer. The report told of the Fairchild advanced lectures being given under the auspices of the British schools of pharmacy and of the announcement of a new British Pharmacopœia for next year. Among the published articles referred to were "The Filtration of Bitter Almond Water and Cherry Laurel Water," "The Inaccuracy of Official Tests for Sodium Salicylate," "Identifying Shapes for Tablets," "Sources of Error in the Use of Nylander's and Trommer's Reagents," and "The Determination of Phenolphthalein in Mixtures." Other matters referred to included the new Japanese law regulating the sale of unofficial medicaments, the homeopathic features of the Dresden Hygienic Exposition, a census of German licensed pharmacists and physicians, reported analyses of nostrums in the *Pharmazeutische Zentralhalle*, the approaching meeting of the American Medical Association, and a Treatise on Commercial Pharmacy, a new book by Dr. C. O'Connor.

For the committee on professional relations, J. L. Lascoff reviewed briefly the joint meeting held May 7th, under the auspices of the Branch and the Medical Society of the County of New York. In connection with this report there ensued some discussion of the suggestion made at the meeting to the effect that a joint committee be named by the

two organizations for the purpose of considering ways and means of certifying the fitness of pharmacies. The President of the Branch was authorized to select ten persons to serve on this committee as representatives of the Branch.

Delegates were appointed as follows to represent the Branch at this year's meeting of State pharmaceutical associations:

New York: Hugo Kantrowitz, J. L. Lascoff, and Hugh Craig.

New Jersey: J. C. Gallagher, Charles Holtzhauer, and Hugh Craig.

Dr. H. H. Rusby was the first speaker in the symposium. His remarks had to do with the character of the ergot received for importation at this port and with ways and means of remedying the conditions which he said tended to prevent the medical practitioner from getting satisfactory results with this drug. Less than 10 per cent. of the ergot brought to the port in the season just closing, he said, was first-class, the defects being largely due to natural conditions which could not be overcome, because the drug is not adapted to cultivation. As some of the sophistic practices which might be eliminated he mentioned the addition of rye grains, clean or only partially ergotized; the soaking of the ergot in water to increase the weight, with subsequent musting and decomposition of the active principles; infestation by insects; the incomplete drying of the drug soon after collection; and faulty packing for shipment and storing.

Whether or not the unplumped ergot was as active as that which had the form designated by the Pharmacopœia the speaker could not say; but, he explained, the government officials were obliged to exclude the thin sort because it varied from the official description. Sifting through a No. 8 sieve, he said, would separate all the passable ergot. He declared that ergot properly and promptly dried and properly kept would not deteriorate in five years. In concluding he expressed the belief that the treasury department should have a clearing house wherein imported drugs could be examined and when necessary made fit for consumption before being put in the market. In connection with his remarks, Dr. Rusby exhibited a number of samples of good and bad ergot.

C. E. Vanderkleed, of Philadelphia, the next speaker, considered "The Chemistry of Ergot." The examination of the drug chem-

ically, he said, was not an example of a very exact science, a hundred experiments having separated a so-called active principle in as many forms, none of which was unquestionably correct. He reviewed the chemical study of the drug since the discovery of the oil in 1817, mentioning in turn the claims advanced for the extract, the resin, the volatile amine, ergotin, ecbolin, ergotinine, and cornutine, as being representative of the therapeutic activity of the drug. He pointed out that each investigator gave a new name to the substance upon which he pinned his faith, although many of the so-called new principles were but more or less pure forms of the same substance. It was his opinion that the correct view of the matter was the one advanced by Barger and his associates, Kraft, and others, that no single substance was truly representative of the virtues of the drug.

Referring to Keller's assay process the speaker showed that its only use was to estimate the total content of mixed alkaloids and non-volatile amines. This assay meant nothing to the physician because it failed to assure uniformity in therapeutic activity; it therefore had to be supplemented by a physiological test. Of these latter, he said, the blood pressure test gave the most nearly concordant results and was the one nearest approaching a definite quantitative test.

Ergot to be satisfactory, he said, must have been carefully selected; must contain at least 0.15 per cent. of total principles separated in Keller's assay process; and, if used in the proportion of 0.8 cc. (mil) of fluid-extract per kilo of body weight, must produce an increase of 30 mm. in blood pressure. Because the drug and preparations thereof deteriorate rapidly they must be kept so as to exclude moisture and as far as possible air. He recounted a series of experiments in which it was shown that while a sample of fluidextract kept in a sealed airless tube for a year did not deteriorate in alkaloidal content or power to elevate the blood pressure, some of the same preparation kept in a frequently opened bottle decreased two-thirds in its effect upon the blood pressure and lost more than half its alkaloidal content.

In considering the subject of "Ergot" from the pharmacal standpoint, Cornelius De Jonge said that the selection of the drug was rather difficult for the one who wanted only a first-class quality. This difficulty was increased by the fact that the drug was stored without

any consideration of its liability to deterioration, and that old lots of the drug were frequently mixed with the fresh. Age and soaking change the appearance of ergot and also its odor. He had found from 3 to 8.6 per cent. of moisture in ergot, this year's average being about 8.3 per cent. because the crop shortage had led to considerable wetting to increase the weight. The amount of dust which is caused chiefly by the action of mites varied from 0.13 to 0.56 per cent. in prime lots. Nails and other metallic articles are usually found mixed with the drug.

Mr. De Jonge reviews the ergot preparations of the Pharmacopœias from 1860 to the present time, pointing out the number of variations in the processes. He stated that any exposure of the drug to the action of heat was to be condemned. The buying of the fluidextract in large quantities for dispensing was wrong in his belief because of the deterioration that would follow unless the liquid was immediately transferred to small well-stoppered bottles. Mr. De Jonge exhibited several samples of ergot and some fluidextracts made from thirty-five to forty-four years ago.

In the general discussion of the subject Messrs. von Oefele, Coblenz, Raubenheimer, Lascoff, Weinstein, Dissosway and Bigelow spoke.

A special meeting will be held June 10th, at which time the Branch will hear an address on "Ointment Bases," by Dr. Unna, of Germany.

HUGH CRAIG, Secretary.



CHICAGO BRANCH.

The May meeting of the Chicago Branch of the American Pharmaceutical Association was held Tuesday evening, May 21st, at the University of Illinois School of Pharmacy, and was noteworthy by reason of the presence of Mr. Harry B. Mason, of Detroit, who favored the members of the Branch with an address on the subject, "Why Some Druggists Don't Make More Money." After discussing the subject in a general way, Mr. Mason pointed out the following specific list of blunders which are often responsible for the failure of some druggists to make as much money from their business as they should make: First, they don't keep business accounts. Second, they don't take inventories. Third, they don't know how to figure profits. Fourth, they lose money with-

out knowing it. Fifth, they don't keep the percentage of expense and the percentage of gross profits far enough apart. Sixth, they don't take advantage of their cash discounts.

In closing, Mr. Mason stated that he had not tried to exhaust the catalogue of shortcomings but only to point a few of the reasons why some druggists don't make more money. Neither did he mean to suggest that druggists are any worse than any other retail merchants, but was convinced that as a class druggists do not make that close economic study of their business which the times demand. Modern business is just as much of a science as astronomy, biology or engineering. The old slipshod methods won't go; we are either up-to-date or out-of-date.

Mr. Mason's paper was very well received and a rising vote of thanks was tendered him. A lively discussion followed the reading of the paper. Secretary T. H. Potts of the N. A. R. D., Ex-President J. J. Boehm of the I. Ph. A., Professors Snow, Clark and Patterson, Secretary Day, Mr. Gathercoal, Mr. Sass, Mr. H. W. Snow, Mr. Storer and others voiced their opinions. It was gratifying to the officers of the Branch that the closing meeting of the season should be so well attended and so much interest shown. The next meeting of the Branch will be held in October unless a special meeting should be called during the summer.

W. B. DAY, Secretary.



PHILADELPHIA BRANCH.

In point of numbers in attendance as well as generally aroused interest the May meeting of the Philadelphia Branch ranks well with any previous meeting ever held, a miserably wet night preventing what would have been under more favorable weather conditions an overflow meeting.

Incidentally a long forward stride was made in the direction of placing the conscientious pharmacist before the doctor and the layman in the light of one who is not only alive to his responsibilities to both the latter, but seeking how he may better fulfill his professional obligations to both and thus more intelligently assist in promoting the general welfare.

The cordial co-operation on the part of the physicians present and their enthusiastic interest in the program spoke volumes for what may be accomplished in the way of develop-

ing a better appreciation of the inter-related interests of medicine and pharmacy.

The program was well calculated to stimulate the interest of the retail druggist in the question of handling vaccines, and the frequency with which the speakers referred to the druggist's responsibility as a distributor emphasized the need for some thought along this line.

In evidence of the fact that druggists uniformly do not appreciate the importance of carefully storing these products the statement was made that the Board of Health in one community had found it necessary to establish distributing depots provided with proper facilities for preserving the potency of vaccines because the retail druggists of that particular section had failed to do so.

That such discreditable conditions need not become general was made clear in Mr. Cliffe's excellent paper (which is published in full) wherein he describes a simple method whereby the retail druggist may meet his obligations in this matter with a minimum of expense and a maximum of credit to himself.

Not the least interesting feature of the meeting was the announcement that future programs will be printed in the Roster of the Philadelphia County Medical Society. This move is in response to the frequently expressed desire of physicians to attend such pharmaceutical meetings as are of interest to the medical practitioner if the programs were brought to their attention. The courtesies extended by the representatives of the Medical Society during the program negotiations were acknowledged by a vote of thanks to Dr. J. Torrance Rugh, Chairman Publication Committee, and to Dr. A. Bern Hirsh, Editor of the Roster.

The program below was the result of the combined efforts of Presidents Stewart and Kimberly, the meeting being a joint one of the Branch and Scientific Section:

"The Production of Smallpox Vaccine." (illustrated with lantern slides), by W. F. Elgin, M. D.

"The Production of Bacterial Vaccines." (illustrated with lantern slides), by A. Parker Hitchens, M. D.

"Precautions to be Observed in Storing Vaccines for Distribution," by Wm. L. Cliffe, Ph. G.

"The Arguments of the Antivaccinists and the Measure of Truth and Error Contained Therein," by Jay F. Schamberg, M. D.

The discussion was participated in by Drs. McFarland, Wadsworth and Royer, of the Coroner's Office and the Pennsylvania Board of Health and by members of the Branch.

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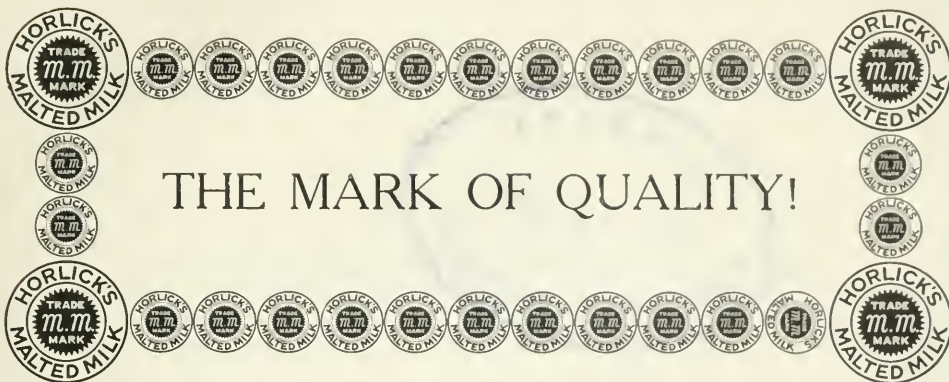
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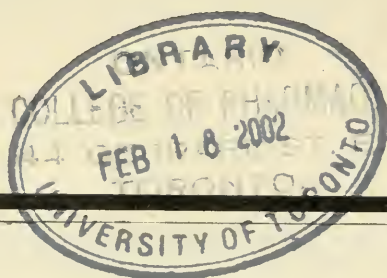
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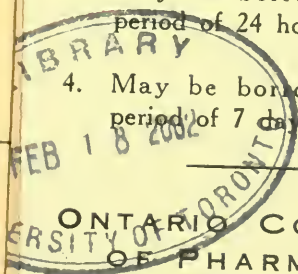
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